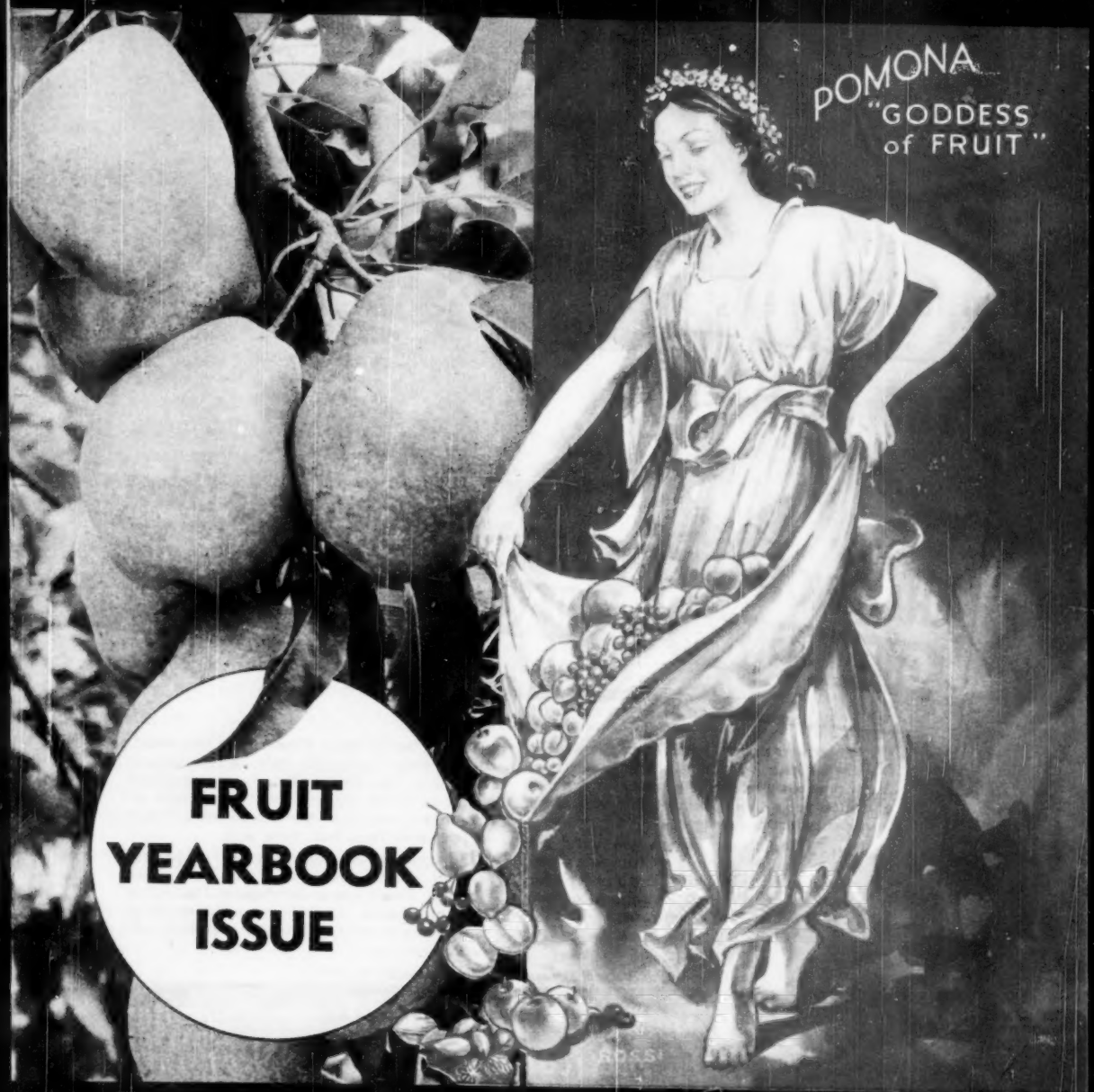
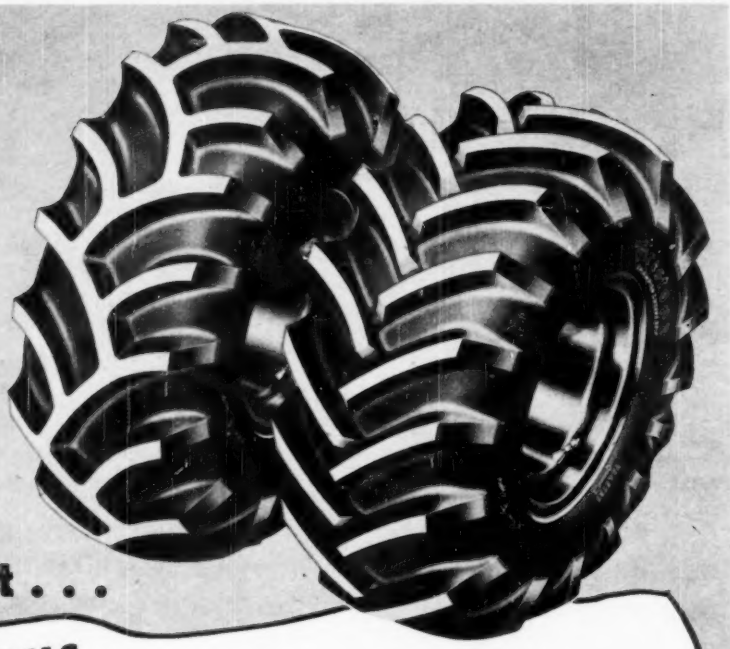
American FRUIT GROWER

JANUARY • 1950



FRUIT YEARBOOK ISSUE

THIS ISSUE 190,000 COPIES



Now

you can get . . .

THE FAMOUS Firestone

CHAMPION CURVED BAR TRACTOR TIRE in Either OPEN CENTER or TRACTION CENTER Design

SOME farmers prefer Open Center tires, while others demand Traction Center. Regardless of the type *you* prefer, Firestone has it. No one else offers you a choice, because Firestone alone provides both tread designs.

If it's Open Center design you want, see the sensational new Firestone Champion Open Center, Curved Bar Tractor Tire. Try it — for traction, for cleaning, for smoothness on the highway, for all around performance. You'll find it's away ahead of any open center tire ever made.

If it's the Traction Center Tire you want, there's only one — the patented Firestone Champion. This tire has long been recognized by thousands of farmers the country over as the top performer for year-around work. A test on your own farm will show you.

So again we say, regardless of your preference in tractor tire tread design, see your Firestone Dealer, your Implement Dealer, or Firestone Store. There's no need to shop around any more. *Firestone has everything in tractor tires.*

Listen to the Voice of Firestone every Monday evening over NBC

Always Buy Tires Built by FIRESTONE, the Originator of the First Practical Pneumatic Tractor Tire

Copyright, 1950, The Firestone Tire & Rubber Co.

Published monthly by American Fruit Grower Pub. Co., 1370 Ontario St., Cleveland, Ohio. Entered as second class matter at Post Office at Cleveland, Ohio, under the Act of March 3, 1879. Additional entry at Mount Morris, Ill.

Now... feed your apple crop

Du Pont NuGreen®

FERTILIZER COMPOUND

SPRAY NITROGEN

The new and better way to feed nitrogen to apple trees is to spray Du Pont "NuGreen" on the foliage. It improves fruit set, makes bigger fruit with better color and improves tree growth. It's not only a more exact and controllable way to supply nitrogen to your orchard, but it also saves labor at every step of the job.

"NuGreen" is concentrated, 44% nitrogen. That means less work to haul or handle it. And to apply it, all you do is dump "NuGreen" in the tank with regular spray mixtures.

Foliage absorbs "NuGreen" quickly. No worry about rain carrying it away or dry weather slowing down its availability. Properly timed sprays supply nitrogen exactly when trees need it.

OTHER CROPS—Preliminary trials indicate possibilities for spray applications of "NuGreen" to other deciduous fruits, berries and small fruits, truck crops, and even certain field crops. Recommendations for these other uses will be made as soon as thoroughly proved procedures are available.

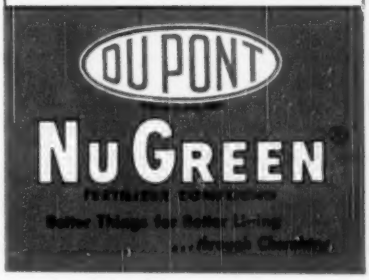
NuGreen for Top Dressing!

"NuGreen" is excellent to apply as top-dressing nitrogen fertilizer direct to the ground. Also ideal to use in irrigation water. It dissolves readily yet resists leaching, is quickly available to crops and stays available when plants need it most.

How to use NuGreen. *Be sure to ask your dealer for booklets that give details including proper concentrations and timing. Get a copy of "Du Pont 'NuGreen' for Apples" from your dealer today or write to Du Pont, Nitrogen Products Section, Wilmington 98, Delaware.*

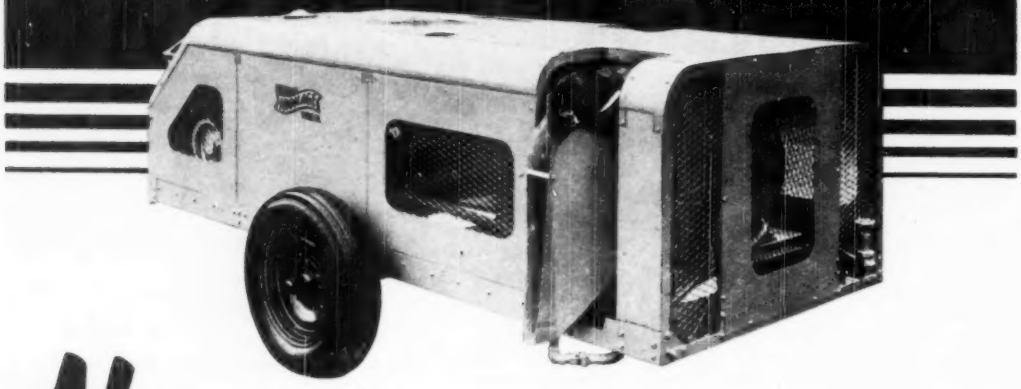
Apple Growers Report These Advantages in NuGreen

- **Save labor**—Less material to handle, and you apply it in your regular spray mixtures.
- **Improve fruit set**—Sprays can be timed to provide a better crop of good-sized fruit.
- **Control color, size**—Permits feeding to the exact needs of the crop.
- **Get better terminal growth** and fruit bud formation with fewer pounds of nitrogen.
- **No other nitrogen needed**—Three or four spray applications can do the entire job for apples.
- **No waste**—Absorbed quickly by foliage.
- **No undesirable residue** in foliage or fruit.
- **Not corrosive**—Doesn't corrode equipment or burn foliage when used as recommended.



Introducing the ALL-NEW *IRON AGE*

ORCHARD MIST SPRAYER



Now!

ORCHARD AND GROVE OPERATORS EVERYWHERE CAN SAVE MORE TIME AND MONEY . . . GET COMPLETE COVERAGE AT LESS COST WITH CONCENTRATE SPRAYING . . . USE LIGHTER TRACTOR EQUIPMENT . . . WITH THIS ALL-NEW ONE-MAN IRON AGE ORCHARD MIST SPRAYER!

Look at these outstanding *exclusive* features of the new Farquhar Iron Age Mist Sprayer that will revolutionize your spraying operations, give you more spraying efficiency than you've ever had before:

DOUBLE AXIAL BLOWERS allow spraying from either or both sides of machine, as required by orchard layout or wind conditions. Greater operating efficiency, less waste of power—no right angle turns between blower and nozzles. High speed air blast insures complete coverage.

SPECIAL DISCHARGE ORIFICES and unique nozzle arrangement make more efficient use of air . . . direct proportionate volumes of air at *uniform velocities* to top and bottom branches, assuring complete coverage without waste. Reversing controls provide automatic cleaning of nozzles.

HIGH PRESSURE BREAKUP assures the *right* droplet sizes for type of work to be done. Complete range of nozzle sizes available, to regulate volume for any particular spraying requirement.

ONE-MAN OPERATION — complete control from tractor seat.

STREAMLINED DESIGN provides extremely low head room, complete protection for low hanging branches.

LIGHT IN WEIGHT permits early spraying under adverse ground conditions.

GET THE FACTS *now* on how this all-new Farquhar Iron Age Orchard Mist Sprayer can meet all your spraying requirements...give you more efficient, more complete coverage in less time, *at less cost*. Mail coupon for details.

Farquhar

IRON AGE

POTATO AND VEGETABLE PLANTERS • TRANSPLANTERS
SPRAYERS • DUSTERS • POTATO DIGGERS • WEEDERS
MANURE SPREADERS • CONVEYORS • JUICE PRESSES

PLANT AND SPRAY THE IRON AGE WAY

MAIL COUPON FOR INFORMATION

A. B. FARQUHAR COMPANY, *Farm Equipment Div.,* **3425-J Duke St., York, Pa.**

Please send me information on the all-new Iron Age Mist Sprayer.

Name

Address

Post Office State

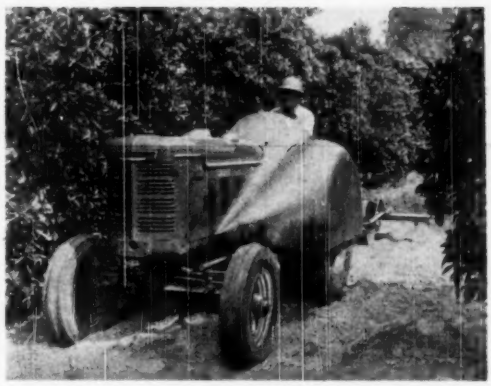
Pulling a McCormick No. 2 peg-tooth harrow, Mr. Ramondo's McCormick OS-6 tractor works 50 acres of orchard in a 10-hour day with 20 gallons of gasoline.

"No repairs in 3 years" *says George Ramondo of his McCormick* Orchard and Grove Tractor

George Ramondo of Sebastopol, California, knows that McCormick Orchard and Grove tractors are ready to go whenever there's a job to be done. For the past three years he's used the McCormick OS-6 shown above . . . used it for all his orchard jobs the year around. And in all that time the tractor hasn't needed a single repair.

Narrow wheel treads and low operator's platform let McCormick Orchard and Grove tractors work close to trees. Double disk steering brakes make sharp turns easy even in loose soil; little foot pressure is needed to lock a wheel. The hand-operated over-center clutch lets you stop and start, even while standing up, without shifting to neutral. A five-speed transmission offers a low first speed, useful when spraying, and a high fifth speed for transport and highway jobs. You can choose between two sizes, between partial and full shielding, and between gasoline, distillate, and Diesel engines.

See your nearby IH dealer about McCormick Orchard and Grove tractors and about convenient payment terms. Or mail the coupon for free booklet.



Notice the streamlined fenders and steering wheel cowl on this fully shielded McCormick O-4 tractor, shown pulling a McCormick Model LM heavy-duty cultivator.

International Harvester Company
P. O. Box 7333, Dept. AFG, Chicago 80, Illinois

Please send, without cost or obligation to me, the booklet telling all about McCormick Orchard and Grove tractors.

Name _____

Post Office _____ State _____

My IH dealer is _____

INTERNATIONAL HARVESTER

For IH 5-Star Service . . . better five ways for getting your farm machines ready for the work ahead . . . see your IH dealer.

IH ★★★★★ 5-STAR SERVICE

First Choice OF COMMERCIAL GROWERS

Wherever Fruit is Raised, Leading Growers Rely on These GENERAL CHEMICAL Spray Materials

GENITOX* S-50 DDT 50% Micro-Fine Wettable Powder. High deposit; minimum run-off; better results.	**LEAD ARSENATE** **Astringent and Standard** The nation's leading "Leads." Better spray covers; better "kill."	**BHC SPRAY POWDER** For effective control of curculio on peaches.
SPRAYCOP* Neutral or "fixed" copper for sour cherries, grapes.	**GENITHION†** Contains parathion . . . for control of mites, certain other pests.	**MICRO-DRITOMIC* SULFUR** With particles of true micron fineness; for apple scab, peach brown rot.
GENICOP* SPRAY POWDER DDT-Neutral copper for grapes.	**NICOTINE SULFATE** A quality leader . . . for aphis and certain other insects.	**STAFAST*** For drop control; pre-harvest hormone spray materials.

†General Chemical Trade-Mark *Reg. U. S. Pat. Off.

For Standout Spray Protection!

GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.
Offices in Principal Agricultural Centers from Coast to Coast

"Man, what a Tractor!"

...IT'S THE NEW JOHN DEERE

Model "AO"

TAKE THE wheel of the new John Deere Model "AO," as hundreds of other orchardists have done. Put it through its paces and you'll join the chorus in acclaiming—*"Man, what a tractor!"* It's truly the outstanding orchard and grove tractor on today's market.

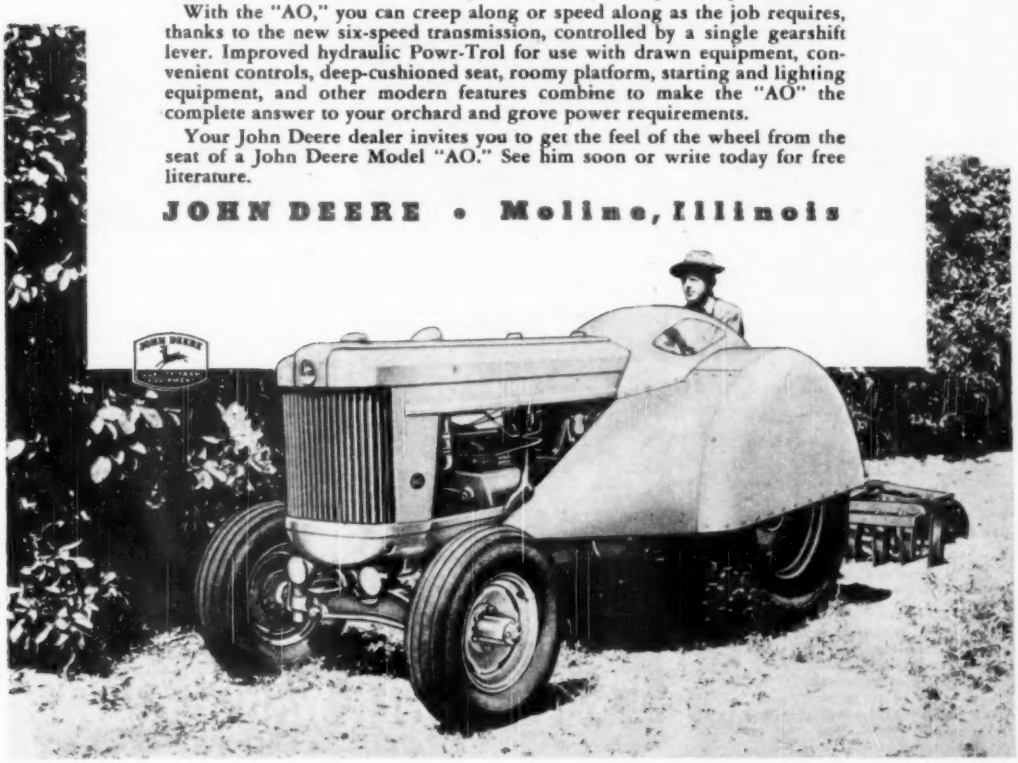
Right from the very start, your enthusiasm will swell. You'll be greatly impressed with its streamlined appearance . . . how well its practical design adapts it for the work. Its shielding saves fruit and foliage; the low construction permits working close to trees and under low-hanging limbs. Its ventilated cowl deflects branches . . . protects you in the tight spots, yet allows unobstructed vision at all times.

But it's on the job, year in and year out, that this new 2-3-plow Model "AO" will prove its performance to you. Its rugged, dependable power, in either the all-fuel or the more powerful gasoline cyclonic-fuel-intake type engine, assures maximum efficiency and economy . . . top-notch performance.

With the "AO," you can creep along or speed along as the job requires, thanks to the new six-speed transmission, controlled by a single gearshift lever. Improved hydraulic Powr-Trol for use with drawn equipment, convenient controls, deep-cushioned seat, roomy platform, starting and lighting equipment, and other modern features combine to make the "AO" the complete answer to your orchard and grove power requirements.

Your John Deere dealer invites you to get the feel of the wheel from the seat of a John Deere Model "AO." See him soon or write today for free literature.

JOHN DEERE • Moline, Illinois

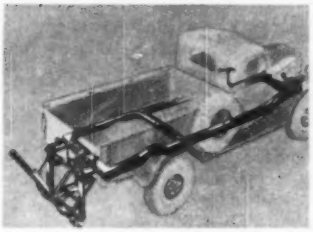


The all-purpose farm vehicle!

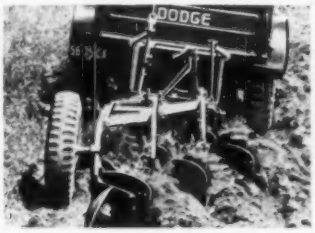
For Easier, More Profitable Farming

From breaking soil to harvest, a Dodge Power-Wagon can save time and money on *your* farm. The Power-Wagon combines, in one mobile unit, the functions of tractor, truck and power plant. With 4-wheel drive, the Power-Wagon gives TRACTION *when* you need it. It gives *PULL as* you need it. It gives POWER *wherever* you need it. Study these pictures. See how you can enjoy easier, more profitable farming. Then talk with your Dodge dealer!

1 The Power-Wagon gives you more horsepower than most farm tractors. Its big express body is 8 feet long, 4½ feet wide. Capacities range up to 8700 lbs. (gross weight).

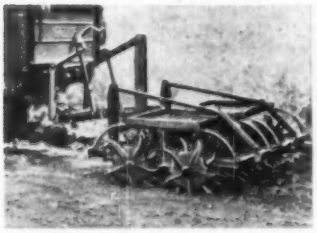


2 For ONE-FIFTH the cost of a tractor, this "Hydraulic Lift" permits you to operate 3-point hitch implements (attachable in 60 seconds) with "finger-tip" ease.

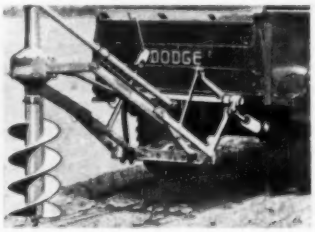


3 With more horsepower than most farm tractors, the Power-Wagon easily pulls a three-bottom plow through the toughest soil . . . and faster, too!

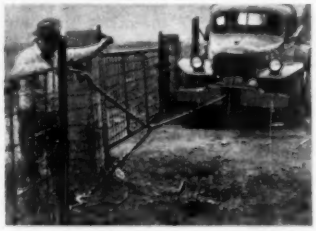
4 Disc harrows, plows, and other 3-point hitch implements can be operated, transported, backed into field corners, and turned sharply . . . from inside the cab.



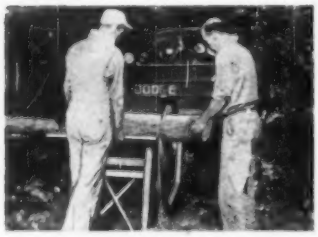
5 For eradicating weeds in row crops, such as corn, cotton, tobacco . . . a Power-Wagon with rotary hoe is hard to beat!



6 You can drill fence post holes at the rate of one a minute. Fence posts can be carried in the big express body.

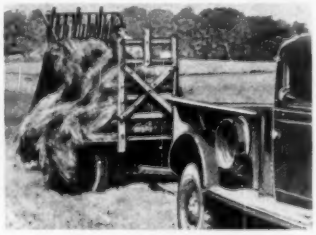


7 The Power-Wagon's powerful winch enables you to stretch fence easily and quickly, even when travel in fields is necessary.



8 The Power-Wagon supplies ample power for all farm sawing, including timber. There's abundant space for carrying wood.

9 Ensilage cutting . . . and other types of equipment . . . can be operated by a belt from the power take-off of the Power-Wagon.



10 The great traction and pulling power of 4-wheel drive enables you to haul heavily loaded trailers, even over rough fields.

Because the Power-Wagon goes where other trucks can't go, and does what other trucks can't do, many well-satisfied farmers consider it their No. 1 item of farm equipment. Let your Dodge dealer explain how this vehicle can show you the way to profitable farming.

THE DODGE 4-wheel-drive **POWER-WAGON** "Job-Rated" for the farm

FRUIT GROWERS REPORT REMARKABLE RESULTS WITH NEW PARATHION INSECTICIDES

Controls Many Insects Unaffected By Most Commonly Used Insecticides

Orchardists and fruit growers from Maine to California have given enthusiastic endorsement to insecticides manufactured from THIOPHOS® Parathion, according to reports received by American Cyanamid Company, original developers of parathion.

A prominent grower in Kentucky reports that his application of parathion at the rate of 1 lb. of 15% wettable powder in 100 gallons of spray gave the best control of curculio yet experienced. This same dosage gave excellent kills on grasshoppers in Shenandoah Valley orchards, where another user reported that after five applications of a 1½ lb. concentration, his Elbertas were absolutely free of any insect damage. He further stated that *the color of the peaches was actually better.*

In the protection of apples and pears, excellent kills of common pests like bud moths, mites, curculio and psylla are reported from areas as widely scattered as Washington State and Michigan, while a New Hampshire grower tells of parathion's outstanding efficiency against red mite. This grower finds that parathion gives an unusually high percentage of kill, with sufficient residue to slow down re-infestation.

Fruit fly on blueberries in Maine . . . aphids, and mites on walnuts in California are just a few of the other types of insects whose control is credited to parathion. Most growers agree that an important advantage of parathion is its toxicity to many kinds of aphids, mites and leaf rollers unaffected by most of the commonly used insecticides.

Thiophos Parathion Insecticides made by National Manufacturers

Insecticides made from THIOPHOS Parathion are available in dust and wettable-powder formulations from these reputable manufacturers:

California Spray-Chemical Corporation, Richmond, Cal.

Chipman Chemical Company, Inc., Bound Brook, N. J.

Dow Chemical Company, Midland, Mich.

Geigy Company, Inc., New York

General Chemical Division, Allied Chemical & Dye Corp., New York

Niagara Chemical Division, Food Machinery Corporation, Middleport, New York

Pennsylvania Salt Manufacturing Company, Philadelphia, Pa.

Sherwin-Williams Company, Cleveland 1, Ohio

Stauffer Chemical Company, San Francisco and New York

Sunland Industries, Inc., Fresno, Cal.

Tobacco By-Products & Chemical Corporation, Richmond, Va.

Use Parathion Safely

Any insecticide toxic to insects is also hazardous to humans if used carelessly and in defiance of certain common-sense precautions.

These precautions are stated explicitly on every container of parathion insecticides. They must be read carefully and observed strictly to avoid accidents.

It is urged that work crews who are given parathion to apply be fully advised also of the necessity of observing these precautions.

Be sure to write for Growers' Manual on Parathion

AMERICAN Cyanamid COMPANY

Agricultural Chemicals Division

30-X ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

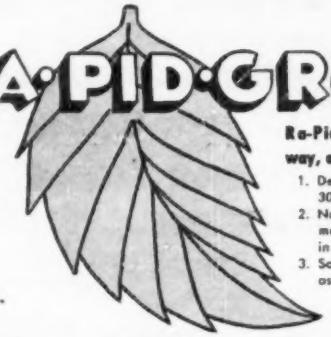
Please send me Growers' Manual giving latest recommendations for using Parathion.

Name_____

Address_____

_____

RA-PID-GRO



Ra-Pid-Gro leads the way, and here's proof:

1. Development started 30 years ago.
2. Name and Trade-mark were registered in 1938.
3. Sold to Nurserymen as early as 1938.

23% NITROGEN

21% PHOSPHORIC ACID

17% POTASH

PLUS—

12 other chemicals and Vitamins and Hormones, produce flavor, color and abundant crops!

You cannot obtain maximum crop growth on a partial diet nor with a miscellaneous assortment of chemicals. Use the *only* complete plant food—RA-PID-GRO. It contains every known element that plant life needs—in the proper quantity —all immediately available to either roots or foliage. No other plant food is made like RA-PID-GRO.

Foliage Feeding is Economical

RA-PID-GRO has led the way in foliage feeding and authorities now admit plants can take liquid RA-PID-GRO through the foliage. It's economical too—because RA-PID-GRO is compatible with insecticides and can be mixed and applied with your spray.

When to Feed Ra-Pid-Gro

1. Early—at base of tree or at planting time.
2. At blossom time.
3. When fruit is half matured.

Typical Results

"1 lb. to the acre produced 110 lbs. of sweet corn."

"1 lb. to the acre produced most protein and nitrogen per acre of alfalfa."

"Average cost only 20c per tree."

Nurserymen call Ra-Pid-Gro the Miracle Plant Food

RA-PID-GRO

RA-PID-GRO CORPORATION · DANSVILLE, NEW YORK

JANUARY 1950

VOL. 70 No. 1

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Please notify us if you change your address, giving us the old address as well as your new one.

[PRINTED IN U.S.A.]

Why D2 Results Are Extra Special...

Tree-Grubbing OR Cover-Cropping!

IT'S your choice—which end of the D2 you use—to employ its 4-plow power with ease and profit.

All-soil, all-weather traction is the answer. Positive traction is assured by the accurate balance of ample weight on broad, multi-grousered tracks.

The D2 concentrates 32 heavy-duty horsepower on its No. 2S Bulldozer's blade to grub-out an anchored old fruit tree. Minutes later, the same D2 romps along with a full-angled cover crop disk.

These views in the Milo Wood orchard, near Wenatchee, Washington, tell you with certainty: no orchard job is too tough for the "Caterpillar" Diesel Tractor to do extra well. Here's a promise, too, of power for timely spraying and harvesting, regardless of wet weather.

Equipped with bulldozer, your "Caterpillar" Diesel can clear and level land, build you a spray-water reservoir at low cost, fill gullies and plow snow... And owners, from Washington to Florida, report the D2 uses less than 1½ gallons of fuel per hour (average) on the year's work!

See your "Caterpillar" Dealer about an early D2 demonstration—to prove how it can lift profits, and simplify your job!

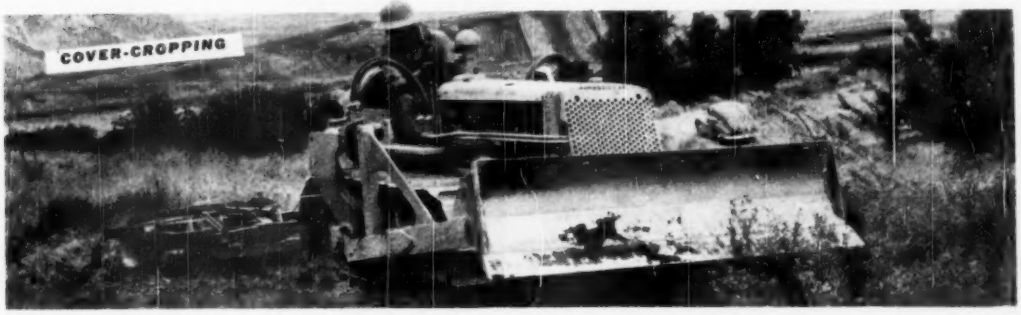
Caterpillar Tractor Co., Peoria, Illinois

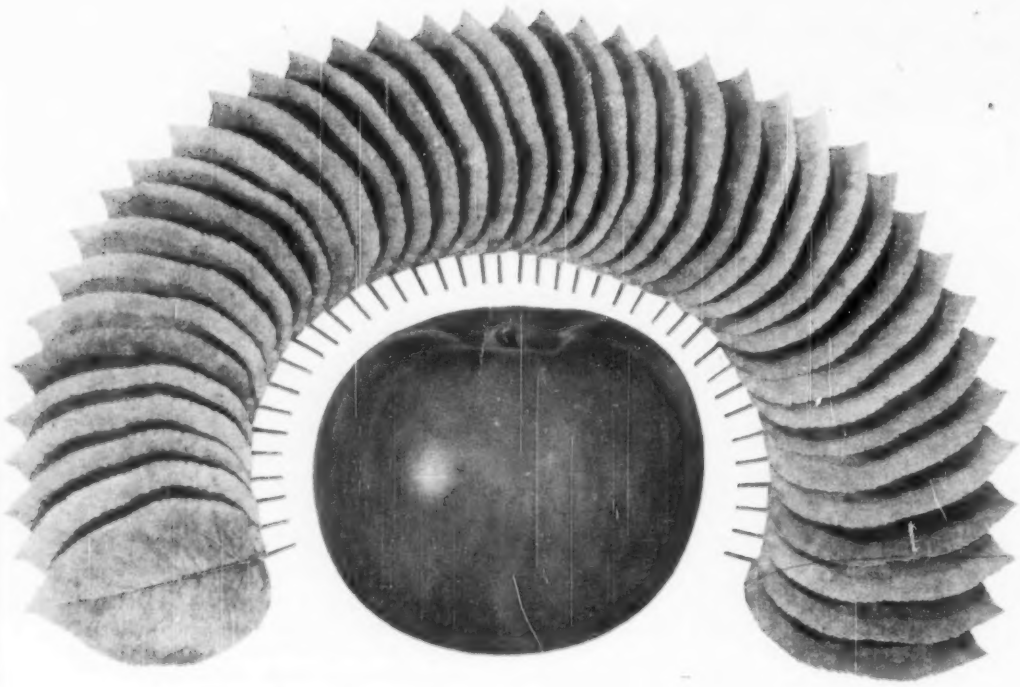
THE *8-page fully-illustrated booklet, Orchard Diesels, tells how this power is serving fruit-growers, the country over. To get your copy, request form AF-121 direct from "Caterpillar."*

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES · TRACTORS · MOTOR GRADERS
EARTHMOVING EQUIPMENT





The LEAVES build the fruit!

THE SUGARS and carbohydrates which build the fruit are manufactured in the leaves. Lots of healthy leaves are needed to produce big yields of top-quality fruit. Your leaves are your factories.

When you spray your trees with Black Leaf 40, you protect your leaf factories from damage or destruction by aphids, leafhoppers, apple redbug, most thrips, four-lined leaf bug, pear psylla, codling moth, bud-moth, pear midge, leaf-miners, mealy bugs, pecan phylloxera, pecan nut casebearer, and similar insects.

Black Leaf 40 kills these pests two ways—by contact and by fumes—quickly and economically, and insects controlled by this method do not develop resistant strains.

Black Leaf 40 does not destroy beneficial insects such as lady bird beetles and their larvae, aphid lion, syrphid fly, chalcid wasp, orius bug, epyris wasp, braconid wasp, various egg parasites, and numerous other friendly insects that attack your insect enemies. Black Leaf 40 also spares bees—the pollenizers.

Black Leaf 40 is non-caustic and does not injure foliage or fruit. It leaves no harmful residue . . . necessitates no washing of fruits. Black Leaf 40 is compatible with all standard spray materials, ideally suited for use in combination sprays.

You know you can depend on Black Leaf 40—the tried and trusted friend of fruit growers for two generations. **Black Leaf 40 is a product of Tobacco By-Products & Chemical Corporation, Richmond, Virginia.**

The "LEAF" that protects the tree is "Black Leaf 40"

LETTERS TO THE EDITOR

A Plea for Price Supports

Dear Sir:

I can't say that I like support prices on anything; but, if one grower is protected with a 100 to 200 per cent profit, his neighbor who has to help pay the bill should have protection that is at least 10 per cent above cost instead of 50 per cent below. I think it should be the duty of the U. S. Department of Agriculture to help distribute produce so that the grower gets a profit. Perhaps they should clamp down on buyers, canners, etc., and insist that they pay reasonable prices. There are lots of ways that they could help stabilize prices without spending billions in buying and piling up surpluses to be later destroyed.

Here are two ideas to help remedy the situation. The USDA is too big. It is unwieldy—it is grain grower, stock grower controlled. The fruit industry alone is big enough to have a separate department—Department of Horticulture. This would take in all trees and shrub growing (nursery division), all deciduous and citrus fruit growing. This department would probably be larger than some of the departments we now have, and, if in charge of men who are fruit-minded, not peanut politicians, the fruit industry would profit immensely.

Another remedy is a national fruit growers' organization, to take in all fruit growers—apple, grape, orange, peach, lemon, etc. Have national headquarters at Washington, D. C., with a paid secretary who is constantly on the job to protect fruit growers' interests. We have all the State horticulture associations which could form the nucleus; also the Pomological Society. Such an organization would carry a lot of weight. Labor has its A.F.L. and C.I.O., and look where they have gotten in the last few years.
Wenatchee, Wash. W. D. Plough

Reader Plough brings up current questions important to all fruit growers. Opinion on subsidies for fruit seems to be divided into four separate camps: (1) those who are unequivocally for guaranteed price levels; (2) those who think, as Mr. Plough does, that if other crops are supported, it is necessary to guarantee fruit prices to keep the fruit industry from being swamped by increasingly high costs and tax burden, all of which reflect government intervention; (3) those opposed to price supports for fruit but content with the present method of government surplus removal; and (4) those opposed to all forms of government subsidy.

This is one of the most difficult questions facing our times. What do you think? Send your opinion to Letters to the Editor.—Ed.

Spray Name Puzzles

Dear Editor:

Please, won't somebody do something to help us ordinary orchardists, who don't have a chemical engineer's education, to buy our sprays by some common-sense names or reasonable classification.

One of my friends had three packages of spray which he thought were all different, but, when we talked to a man who really knows all about sprays, we found out that they were all good for the same purpose. Any one of them would do the job.

In this day and age of higher education it would seem that things could be made plainer and simpler, not more difficult and confusing. I have been a reader of AMERICAN FRUIT GROWER for many years and must confess that after reading some of the articles and some of the spray ads that I am more confused than ever.

I have lived in Illinois, Michigan, Ohio, Massachusetts, and New Hampshire, and spray combinations that are right for one State may not be considered suitable for a faraway State.

There are thousands of fellows who have the same difficulty and I have talked to many of them in various States. I am sure this letter voices their views also.
Columbus, Ohio L. V. Bratton

Reader Bratton's plea for "common-sense" names is being answered. Here are the recently selected common names for six fungicides: "ferbam" for ferric dimethyl dithiocarbamate, "ziram" for zinc dimethyl dithiocarbamate, "nabam" for disodium ethylene bisdithiocarbamate, "zineb" for zinc ethylene bisdithiocarbamate, and "thiram" for tetramethylthiuram disulfide.

One thing is sure—the new names make it possible to talk about these new chemicals without running out of breath.—Ed.

Pruning?

Dear Sir:

Abetted by a little loving care by man, isn't nature wonderful? This picture was taken along U. S. Highway 80, between Dallas, and Fort Worth.
Grand Prairie, Tex. Naomi Watson

More Deer Damage

Dear Sirs:

I have enjoyed your magazine for years. You thoroughly cover the programs of growers throughout the country, but I would appreciate an article on the problem of deer in Massachusetts. Recently, the so-called sportsmen in this area forced a number of legislative bills into law. The Conservation Department has openly defied the fruit growers, telling them they should not protect their property; in other words, the game is more important even in areas where intense damage is being done. We need a voice to present our side of the question.
Groton, Mass. R. F. Priest

We have published a number of articles and editorials on the ever increasing menace of deer in the orchard. As pointed out in the March, 1949, issue of AMERICAN FRUIT GROWER, orchardists who suffer damage from deer which are protected for the benefit of the public at large must be compensated for the damage.

To achieve this fruit growers must present their case to their State legislature. Strong leadership and a firm purpose are necessary to get the job done. This is a job for the State fruit growers' associations or the State horticultural societies.—Ed.

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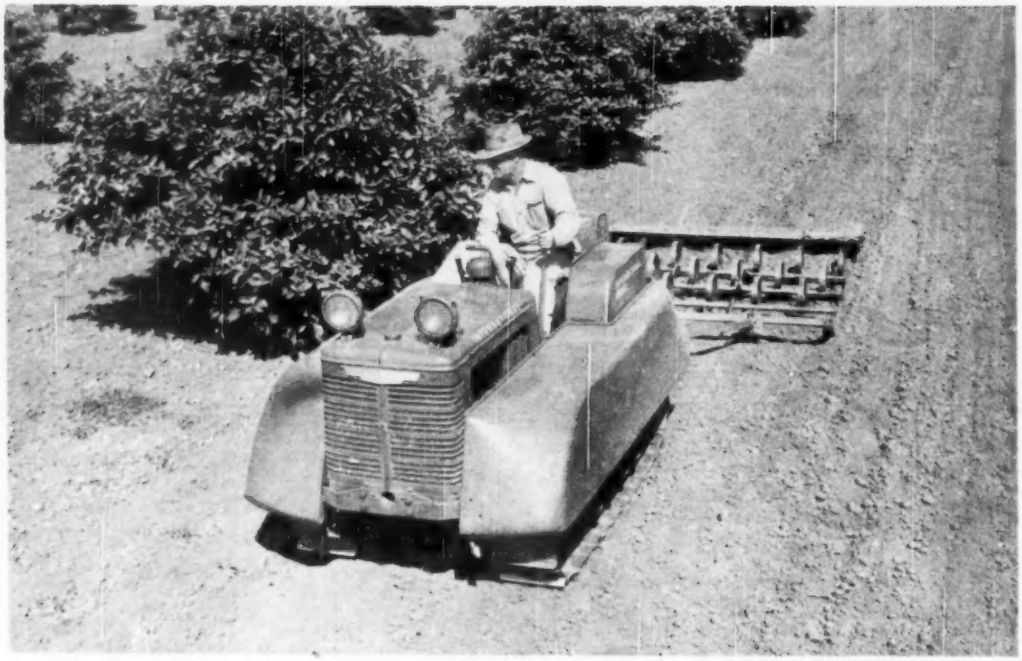


Mr. Rock harrowing his 20-acre avocado orchard. His tractor is an International TD-6 Crawler, and it is teamed up here with a 10-foot McCormick Model R heavy-duty spring-tooth harrow. Special fenders shown are manufactured by Crescent Sheet Metal Shop, Santa Ana, California.

"I've never seen anything that will compare with my

INTERNATIONAL DIESEL CRAWLER,"

SAYS JOHN F. ROCK, CARPINTERIA, CALIFORNIA

When he made the statement quoted above, Mr. Rock had owned his International TD-6 Diesel Crawler tractor 21 months and had operated it a total of 900 hours. So he'd had plenty of time to get to know the tractor. And he had a sound basis for comparison, too . . . he has used many different tractors during the past 30 years.

Why does Mr. Rock like his International Crawler so well? For many reasons, including these: it does its job, and does it economically. In Mr. Rock's own words: "I have never found a job too big for my TD-6 on my small farm, nor have I been able under any conditions to make it use more than 1¼ gallons of fuel per hour. There have been no repair costs."

* * *

There's an International Diesel Crawler to meet every need. The five sizes range from the TD-6, with power to pull 3 or 4 moldboard plows, up to the giant TD-24, with 140 drawbar horsepower. Parts and service are right at hand at your IH dealer's, just the same as for all the other International Harvester equipment that is used so widely in your neighborhood.

To learn more about International Crawlers, see your IH dealer. He can arrange convenient payment terms if you wish. International Harvester Company, Chicago 1, Illinois.

International Diesel power for irrigation pumping, too. The same dependable engines that are used in International Crawlers and other IH tractors are ready to give you the right power for every irrigation pump job. Sizes range from 22 to 180 maximum horsepower. Above: the International UD-18A power unit. See your IH dealer.

See your IH dealer for IH 5-Star Service . . . better five ways for keeping your farm machines new longer.

IH 5-STAR SERVICE

INTERNATIONAL HARVESTER

Standard Oil Co. (N.J.) Photo by Parks.

FRUIT YEARBOOK

Varieties—Planting—Production—Markets Methods and Organizations

The Historical Forties

AS WE BEGIN a new year and a new decade, the last 10 years will go down in history as the turbulent forties when growers enjoyed an unparalleled period of prosperity.

During the 1940's new records in production and in value of fruits were set as growers responded to wartime demands for increased production. New cultural and pest control methods made possible increased yields per tree so that larger crops were produced on smaller acreages. Fruit growing became more specialized; orchards on unfavorable sites or on poor land were pulled out and acreage became more concentrated in favorable areas.

Because of the high value of fruit land, it became increasingly difficult for young men to start in the orchard business. The Census of 1945 reported a lower percentage of fruit farm owners under the age of 35 than in nearly every other branch of agriculture. However, the rewards involved in fruit growing continued to bring sons back to the farm, and, today, it is not uncommon to find the fourth generation carrying on the family tradition of growing fruit.

The fruit industry at the start of 1950 is in a sound and stable condition. Financially, the industry has large reserves. Fruit growers are well informed and highly skilled in their profession. During the decade of the 40's, the fruit industry made great strides forward.

Probably the most significant change in the fruit picture during the past decade was the rapid increase in consumption of processed fruits (canned, dried, and frozen). In 1935, 42 pounds of processed fruit (fresh basis) were consumed per capita, and, in 1947, this figure had jumped to 88 pounds per person. Experience in marketing fruit to processors brought to light several important factors. The grower who sells all his fruit to processors receives less of the consumer dollar for his fruit.

Figures show that in 1949 the grower received only 22 per cent of the housewife's dollar for processed fruit and 39 per cent for fresh fruit. Also, when the grower gives up his fresh marketing channels, he loses considerable of his bargaining power with the processor in establishing prices. Growers are overcoming these difficulties by buying out processor outlets, such as in the Appalachian area, or by joining together to present a united front in processor dealings, as the California cling peach growers have done.

Trees are the only plants which defy time. Anything else planted or raised on the farm is of short life and perhaps only of a season's duration. The time-defying characteristics of trees makes fruit growing a long range venture in which decisions once made cannot be readily changed. To enable the grower to plan wisely for the future, AMERICAN FRUIT GROWER presents in this issue the statistical background of the great business of growing fruit.

The changing variety situation, the relation between fresh and processed fruits, and the economics of production and marketing all vitally affect orchard profits. Such basic data will enable the grower to more accurately gauge his own operation and guide him in planning for the future. The figures and charts in this issue were taken from reports compiled by the Census Bureau and the U. S. Department of Agriculture, unless otherwise noted.

The Outlook

REDUCTION of costs and efficient marketing, both individually and collectively, are the most important aspects of the outlook for 1950. Fruit prices hit their peak shortly after the war and began leveling off in 1948. Costs of fruit production, on the other hand, were slower to rise and will be slower to decline. Since costs of supplies will remain at high levels in 1950, any reduction must take place through individual efficiency in using labor and machinery and by increasing production per tree.

For efficient marketing in 1950, growers must make arrangements for satisfactory outlets in advance of harvest. Competition in the food field is growing and it is likely that it will increase in 1950. Therefore, collective action by growers in advertising and selling their crops must be thoroughly explored. The advisability of marketing agreements to control the supply and quality of fruit shipped should be considered since the price of fruit in 1950 will depend to a large extent on the overall supply.

The far-reaching effects of freight rate increases will continue to affect the economic situation in 1950. Freight rates hit new peaks in 1949, and, because freight rate increases are on a percentage basis, the producer closer to market gains a competitive advantage. This may cause some relocation of the fruit industry.

Fruit processors, largest buyers of fresh fruits, are also affected by freight rate increases. To avoid high freight rates, processors in 1950 will continue to decentralize their operations by acquiring plants nearer their markets. Packers will continue to diversify their output in the hope that they can increase their total sales in areas relatively near their plants.

APPLES

Record Crop

Nineteen forty-nine's apple crop of 133 million bushels was the largest crop produced in the United States since 1939. Largest increase occurred in the northeastern States with 10 million bushels over the 1938-47 average, of which five million was accounted for by New York alone. Of all the apple producing regions, the Appalachian area, comprising the States of Maryland, Virginia, West Virginia and Pennsylvania, was the only one to show a decrease below the 1938-47 average.

Crop of the midwestern States was eight million bushels above average with Michigan showing the largest gain of nearly five million bushels. Crops in Washington, Oregon, and California were lighter than average but not to the extent of those in the Northeast and Midwest.

The three leading States for 1949 were Washington, New York, and Michigan. Pennsylvania, California, and Virginia followed in fourth, fifth and sixth positions.

PRODUCTION—Million bushels

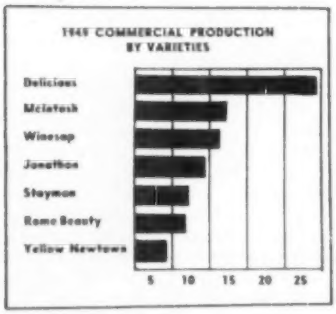
1936	98	1943	87
1937	153	1944	121
1938	106	1945	67
1939	139	1946	119
1940	111	1947	113
1941	122	1948	88
1942	127	1949	133*

McIntosh Moves Up

The trend in the selection of apple varieties during the last 25 years has been towards varieties which have the best dessert qualities, such as Delicious and McIntosh. Also, an increasing percentage of new plantings consists of the red sports.

In 1949, Delicious again led the list of production by varieties, with McIntosh in second place for the first time, having replaced Winesap.

*Preliminary



Poor Sites Abandoned

Largest acreage of any fruit is still in apples, although it has declined steadily since 1919. The decline has resulted from the removal of orchards on poor soils and orchards with high risks of spring frost. The decline was sharpest during the late 1930's.

In all areas the greatest decline in acreage has occurred in the sections which have proved to be least suited to fruit production. Today's acreage, therefore, is more stable and profitable than at any other time in the history of commercial apple production.

Since 1919 the greatest decline occurred in the Central and Western States which decreased their apple acreage by 50 per cent. The figures in thousands of acres are as follows:

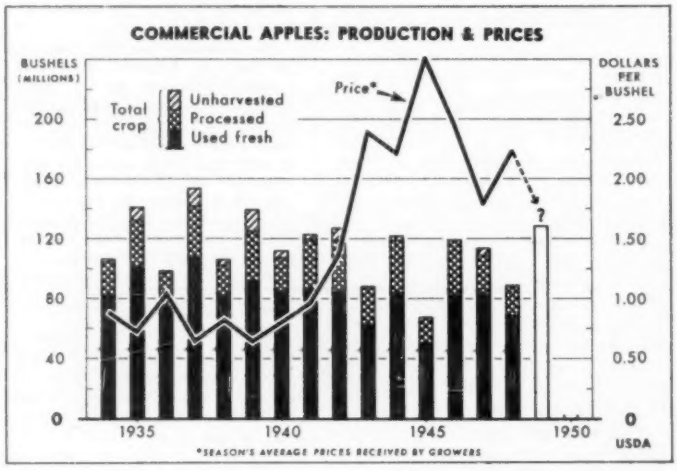
	Eastern	Central	Western
1920	1,144	1,104	343
1930	1,047	844	223
1940	769	608	156
1945	733	539	150
1944	728	530	151

Total United States apple acreage has decreased about 50 per cent since 1920. In 1948 there were 1,364,000 acres in apples.

Largest apple acreage is in the State of New York whose orchards total 170,000 acres. Virginia is second with 134,000 acres and Pennsylvania third with 125,000 acres. Fourth is Michigan with 119,000 acres, and in fifth place is West Virginia with 94,000 acres. Ohio and Washington follow in sixth and seventh places with 87,000 and 73,000 acres, respectively.

Processed Apple Consumption Rises

Records on consumption of fruit have been kept since 1909 when 61.7 pounds of fresh apples were consumed per capita. In the past 40 years consumption of apples in the fresh state reached a peak in 1912 of 74 pounds per person. Lowest fresh consumption was recorded in 1945 with 22.9 pounds per person. However, these figures are not strictly comparable since the production figures on which per capita consumption is based were figured for the entire U. S. in 1912, whereas in 1945 they were counted in commercial areas only.



Also, these figures are for apples used fresh and do not take into account apples which were canned, juiced, or frozen, an industry which has expanded rapidly. Canned apple and apple sauce consumption have advanced from ½ pound per person in 1909 to 2 pounds in 1948. This is about half of the canned peach consumption. Frozen apples have shown a steady rise from 1/100 of a pound per person in 1937 to 1/3 of a pound in 1948. Peak year was 1/2 pound in 1946.

Canned apple juice started at approximately 1/10 of a pound per person in 1944. After a steady rise to 1/2 pound in 1944 apple juice consumption fell to a level of approximately 1/3 of a pound in 1948.

Dried apple consumption varies between 1/10 and 1/5 of a pound per person.

APPLES—Per Capita Consumption—Pounds

	Fresh	Canned	Frozen	Juice
1931-40	33.7	1.0		
1941	31.5	1.4	.03	.20
1942	27.9	2.1	.08	.36
1943	24.8	1.9	.05	.44
1944	25.4	1.0	.36	.62
1945	22.9	1.1	.51	.26
1946	23.2	1.4	.58	.35
1947	25.2	1.7	.34	.26
1948	25.2	2.0	.31	.3

FRESH—PRICES

Season Average Price Per Bushel (Received by Grower)

1934	.88	1942	1.37
1935	.72	1943	2.39
1936	1.04	1944	2.21
1937	.64	1945	3.01
1938	.82	1946	2.46
1939	.64	1947	1.79
1940	.50	1948	2.23
1941	.96		

CANNING—Season Average Price Per Ton (Received by Grower)

	1946	1947	1948*
New York	78.00	51.60	57.40
Potomac Valley	79.60	65.20	43.90
Pacific Northwest	53.60	24.20	21.90

CIDER & VINEGAR—Season Average Price Per Ton (Received by Grower)

	1946	1947	1948*
New York	24.00	13.40	21.80
Pennsylvania	20.80	18.80	16.70
Virginia	18.80	15.00	12.50
West Virginia	20.50	14.60	12.50
California	20.80	11.30	17.90

DRYING—Season Average Price Per Ton (Received by Grower)

	1946	1947	1948*
California	43.80	11.70	18.80
Washington	29.00	11.30	15.70
New York	37.00	17.80	24.40
West Virginia	57.10	35.40	***

***Quantity negligible.

FREEZING—Season Average Price Per Ton (Received by Grower)

	1946	1947	1948*
Virginia	77.10	73.40	50.00
Washington	52.90	15.20	17.00
California	70.80	22.90	37.50

RETAIL PRICES—Average Per Pound

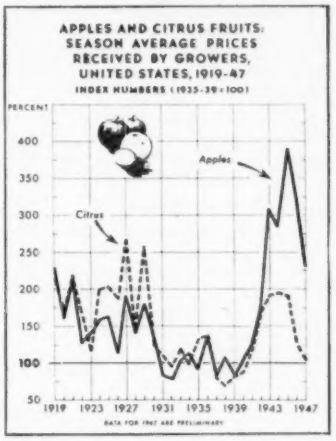
1939-40	4.9	1944-45	11.3
1940-41	5.3	1945-46	14.1
1941-42	6.2	1946-47	13.1
1942-43	8.7	1947-48	10.7
1943-44	11.5	1948-49	13.7

—*Bureau of Labor Statistics*

Value of Crop

Value of the apple crop showed a steady upward trend during the war years until it hit a peak of $292 million in 1946. The large crop of 1947 caused a decline to $194 million which was arrested by the short crop of 1948 when total value rose to $195 million.

In 1946, total value of the deciduous fruit crop was over a billion dollars, the apple crop accounting for more than one-fourth of this total valuation.



Advertising King Apple

Various groups participating in programs to promote and advertise apples are the Michigan State Apple Commission, Appalachian Apple Service, Wisconsin Apple Institute, New York & New England Apple Institute, and the Washington State Apple Commission. Their programs include appropriation for various forms of advertising and promotion, as well as for research.

During the 1948-49 season the total apple advertising and promotion appropriation by these agencies was nearly $700,000. Biggest expenditure was made by the Washington State Apple Commission which, during the season, spent approximately $563,000. This amount was collected through a stamp tax levied against each grower on the basis of production.

The Appalachian Apple Service, which includes the four-State area of Virginia, Pennsylvania, West Virginia, and Maryland, spent $67,000 for their advertising and promotion. Contributions are voluntary in Pennsylvania and West Virginia, in Virginia there is a 1¼-cent tax per bushel on all packaged apples, and in Maryland the tax is 1 cent per bushel on U.S. No. 1 Canner grade or better.

Expenditures by the New York & New England Apple Institute totaled $27,000 during the 1948-49 season. This money was raised through a voluntary contribution of 1 cent per bushel on the commercial fresh crop.

The program of the Michigan State Apple Commission included an expenditure of about $26,500 which was collected by means of a stamp tax.

Members of the Wisconsin Apple Institute, during the 1948-49 season, paid harvest dues of one-half cent per bushel plus 50 cents per acre of bearing orchards for promotion. Other funds were obtained from membership fees. Expenditures for the season totaled about $2,000.

Exports and Imports

Exports of apples to all countries except Canada greatly exceeded imports during 1946-47 and 1947-48 seasons. Principal importers of U.S. apples are listed below. Also included are imports into the U.S. and totals for both exports and imports.

EXPORTS

FRESH Country	1946-1947	1947-1948	1948-1949*
	Thousand Bushels		
Canada	367	194	58
Mexico	269	176	37
Cuba	263	294	230
Sweden	753	287	0
United Kingdom	1,631	9	1
Belgium & Luxembourg	345	35	270
Philippines	486	887	340
Total, all countries	4,834	2,646	1,361

DRIED AND EVAPORATED

	Thousand Pounds		
United Kingdom	4,385	1,583	0
Canada	474	781	16
Netherlands	108	237	43
Switzerland	30	167	22
Total, all countries	9,250	3,727	1,036

CANNED—Apples and Applesauce

	Thousand Pounds		
Canada	788	567	2
Venezuela	222	296	236
Canal Zone	276	286	239
Cuba	140	167	242
Saudi Arabia	22	167	88
Total, all countries	2,661	2,075	1,149

IMPORTS

FRESH Country	1946-1947	1947-1948	1948-1949*
	Thousand Bushels		
Canada	901	1,254	1,875
Chile	62	1	29
United Kingdom	0	**	0
Other Countries	21	0	6
Total, all countries	984	1,255	1,952

**Less than 500

Foreign Production

Leading producers of apples in foreign countries are listed below, together with a world total.

PRODUCTION—FOREIGN COUNTRIES

	1947	1948	1949*
	Thousand bushels		
France	82,394	85,734	93,000
Germany	54,350	34,079	43,000
United Kingdom	33,828	23,865	26,133
Italy	22,206	16,547	20,149
Belgium	13,779	3,215	18,372
Austria	8,620	15,616	18,000
Poland & Danzig	18,640	13,421	17,000
Canada	15,616	13,404	16,216
World total	470,875	427,343	503,834

PEACHES

Prices Vary Widely

The season average price received by peach growers has varied widely in the past 15 years. Season average price for 1949 of $1.50 closely approximated the price received in 1947.

SEASON AVERAGE PRICE Per Bushel Received by Growers for Fresh Consumption

1935	1.00	1943	3.59
1936	1.23	1944	2.74
1937	1.15	1945	2.55
1938	.99	1946	2.50
1939	.96	1947	1.94
1940	.95	1948	2.40
1941	.88	1949*	1.50
1942	1.61		

The season average price by States shows a different picture. Highest prices were received by New Hampshire and Massachusetts, with Louisiana, Rhode Island, and Connecticut following closely.

	1948	1949*		1948	1949*
N. H.	3.60	2.90	Ga.	3.10	2.95
Mass.	3.60	2.90	Fla.	2.20	2.10
R. I.	3.60	2.80	Ky.	2.65	2.10
Conn.	3.50	2.80	Tenn.	2.65	2.45
N. Y.	2.50	1.50	Ala.	2.50	2.70
N. J.	2.70	1.75	Miss.	2.90	2.90
Pa.	2.30	1.60	Ark.	2.10	2.05
Ohio	2.50	2.00	La.	2.90	2.80
Ind.	2.40	1.85	Okla.	2.35	1.75
Ill.	2.50	1.45	Tex.	2.65	2.00
Mich.	1.90	1.20	Idaho	1.85	1.10
Mo.	2.50	2.05	Colo.	1.75	1.70
Kans.	2.25	1.75	N. Mex.	2.60	2.30
Del.	2.00	1.80	Utah	1.85	1.50
Md.	2.50	1.70	Wash.	1.92	.82
Va.	3.00	1.80	Ore.	2.70	1.50
W. Va.	2.15	2.75	Calif.	1.57	1.05
N. C.	2.65	2.60	Cling	1.53	.94
S. C.	3.10	3.00	Free	1.69	1.25

Processor prices for canned and frozen peaches declined in 1949 from the high prices registered during the war years.

	1947	1948	1949*
CANNING			
California		Per ton	
Clingstone	49.70	63.30	38.70
Freestone	40.00	50.00	35.00
FREEZING			
California			
Freestone	40.00	40.00	35.00
Washington	65.00	77.00	32.00

On an "on-tree-return-to-grower" basis certain States showed wide variations as shown below:

State	1948	1949*
Colorado	.95	.93
Georgia	2.38	2.24
Pennsylvania	1.10	.50

Production Increasing

Last year's total peach crop of 75 million bushels was 10 million above 1948's short crop and 11 million below the 1946 record production of 86 million bushels. Leading peach State was California, followed by Michigan, which State out-produced South Carolina and Georgia for the second year in a row. In both 1948 and 1949 South Carolina produced more peaches than Georgia, threatening Georgia's claim of being the "Peach State."

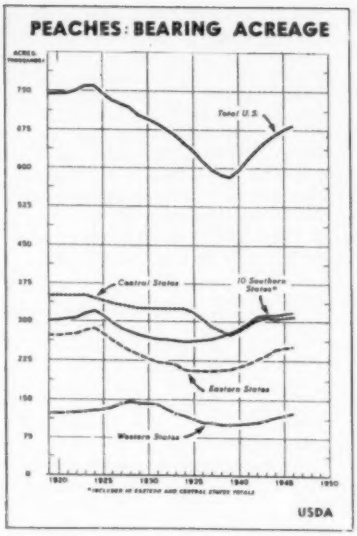
PRODUCTION—Million Bushels

1936	49	1943	43
1937	60	1944	78
1938	54	1945	82
1939	64	1946	87
1940	58	1947	82
1941	75	1948	65
1942	67	1949*	75

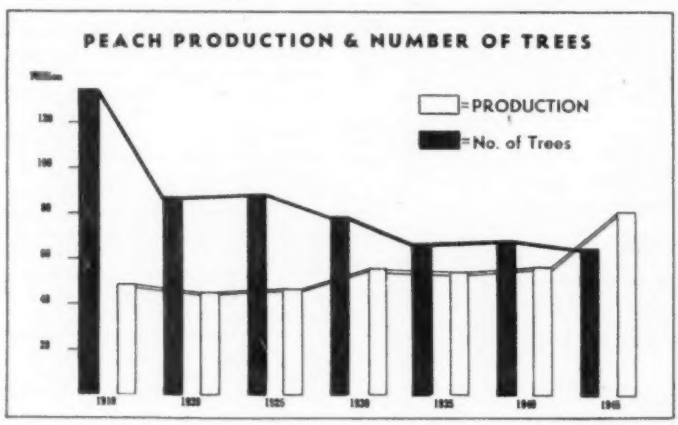
From One to Four

In 1909 approximately 38 million bushels of peaches were produced from 138 million peach trees. In the 40 years since then peach production has steadily increased despite a declining number of trees. In 1945 there were 66 million trees, from which 81 million bushels were harvested. In the 40-year period the number of peach trees was halved and production was doubled. Where one peach grew before, there are now four.

Such a startling production record could not have been achieved without tremendous advances in all branches of peach production—from soils and culture to shipping and selling. (See chart)



Since 1940 peach acreage has taken a marked upward turn, advancing from 600,000 acres to over 675,000 in 1946. This increase occurred mostly in the southern, central, and eastern States



Acreage Climbs

Because peach trees are shorter lived and come into production quickly, acreage planted to peach trees is more highly responsive to economic conditions than with other fruits.

Canned Peaches Lead Exports

Exports of canned and dried peaches during 1946-47 were considerably greater than in the 1947-48 season. Listed are some of the countries which received U. S. canned and dried peaches, together with a total for all countries.

*Preliminary

Caterpillar Tractor Co.

Imports of peaches into the U.S. during these years were negligible.

CANNED—Exports

Country	1946-47	1947-48	1948-49*
	Thousand Pounds		
Canada	1,134	9,993	601
Belgium & Luxembourg	5,744	6,978	5,502
Cuba	3,141	3,863	6,251
Philippines	1,900	1,165	1,904
United Kingdom	23,427	20	5
Total, all countries	51,682	30,834	20,527

DRIED—Exports

Egypt	1,111	744	3
Union of South Africa	701	641	0
New Zealand	0	360	0
Japan	4	267	2
Canada	2,992	158	32
United Kingdom	18,551	89	0
Total, all countries	25,363	2,848	5,233

U. S. Leads World Peach Production

Leading producers of peaches in foreign countries are given in the following table. Also included is a total for all foreign production which is less than one-half of U. S. production for the same years.

FOREIGN PRODUCTION

Country	1947	1948	1949*
	Thousand Bushels		
Italy	10,747	8,772	9,186
Argentina	6,429	6,500	6,500
France	5,236	2,991	4,500
Spain	1,600	3,000	3,300
Australia	2,962	2,500	2,500
Mexico	2,195	2,342	2,342
Canada	1,681	1,760	2,025
Total, foreign	36,974	33,318	36,798

APRICOTS

Acreage Declines

Apricots are produced principally in California, although Washington, Utah, and Oregon produce sizable crops. Apricot acreage in California declined steadily until 1944 when the profitable war years caused an increase in plantings. On the other hand, apricot acreage in Washington has grown larger every year since 1935, advancing from a little over 3,000 acres to 4,500 acres. Utah acreage also has increased although not so rapidly as in Washington. Despite increases in acreage in Washington and Utah, however, total apricot acreage in the three principal States has declined because of decreased plantings in California.

ACREAGE—Thousands

	California	Washington	Utah	Total
1935	76.5	3.2	1.2	80.9
1936	75.1	3.4	1.3	79.8
1937	75.1	3.4	1.4	79.9
1938	73.8	3.4	1.4	78.6
1939	72.7	3.5	1.5	77.7
1940	70.5	3.5	1.5	75.5
1941	68.7	3.6	1.5	73.8
1942	67.3	3.8	1.6	72.7
1943	67.3	4.0	1.6	72.9
1944	66.9	4.2	1.6	72.7
1945	67.0	4.3	1.6	72.9
1946	67.3	4.5	1.6	73.4

California Tops Market

Season average price received by apricot growers reached its peak in 1943 for fresh use and in 1945 for processed use. California growers received season average prices higher than the prices received by Washington and Utah.

FRESH AND CANNED, U.S.
Season Average Price Per Ton Received by Grower

	Fresh	Canned
1935	54.50	52.30
1936	49.40	31.10
1937	58.80	42.00
1938	38.20	22.20
1939	42.40	26.40
1940	58.50	53.50
1941	53.40	44.50
1942	86.10	63.30
1943	170.00	102.00
1944	156.00	92.00
1945	149.00	109.00
1946	140.00	96.50
1947	121.00	72.60
1948*	89.60	56.50

FRESH, BY STATES

	1946	1947	1948*
California	150.00	123.00	97.30
Utah	100.00	105.00	121.00
Washington	131.00	121.00	89.50

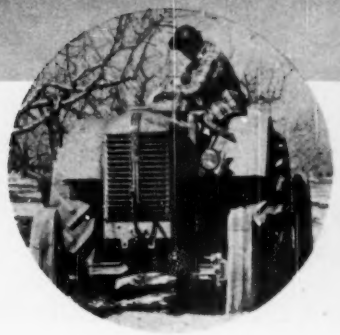
CANNING

California	97.00	73.00	57.00
Utah	80.00	65.00	12.00
Washington	84.00	69.00	43.00
Oregon	96.00	77.00	47.00

1949 Harvest

Production in 1949 of 216,000 tons was midway between the record production of 351,000 tons in 1944 and the low of 104,000 tons recorded in 1943.

California produced 180,000 tons, 11 per cent below average, which is expected in view of California's declining acreage. On the other hand, Washington's crop in 1949 was 28,000 tons, nearly 40 per cent above average. Utah's production was 7,400 tons, or 32 per cent above average.



PRODUCTION—Tons

1935	227,500	1942	228,100
1936	257,000	1943	104,400
1937	324,450	1944	351,800
1938	185,400	1945	191,500
1939	331,500	1946	338,700
1940	127,100	1947	201,500
1941	213,900	1948	246,600
		1949*	216,300

Exports Diminish

During the 1946-47 season there were three times as many canned apricots exported as were exported from the United States in the 1947-48 season. Cause for this large decrease was the United Kingdom which received 13,014,000 pounds in 1946-47 and only 14,000 pounds in 1947-48. Exports of dried apricots decreased 2,000 pounds during the same period.

Canned and dried apricot imports into the U. S. during 1946-47 and 1947-48 were of little consequence.

Countries receiving the largest amounts of canned and dried apricots are listed below. For comparison, totals for all countries are included.

CANNED

	1946-47	1947-48	1948-49*
	Thousand Pounds		
Belgium & Luxembourg	9,206	5,937	7,509
Canada	1,952	1,810	77
Netherlands	1,012	1,405	1,046
Venezuela	620	353	542
United Kingdom	13,014	14	4
Total, all countries	33,242	11,969	11,674

DRIED

Belgium & Luxembourg	1,792	1,687	2,164
New Zealand	**	734	0
Canada	2,561	399	293
Switzerland	517	352	225
Total, all countries	6,859	4,818	6,862

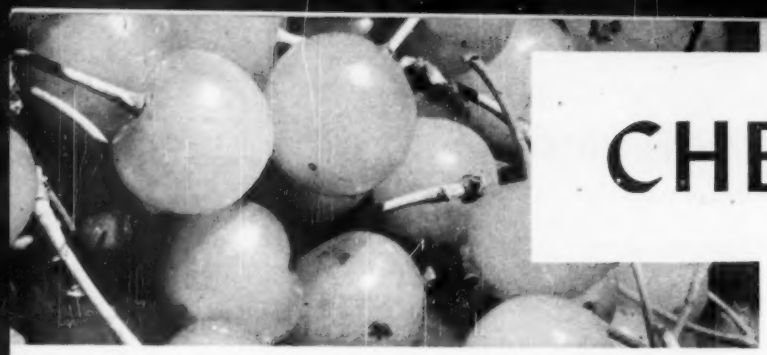
**less than 500

Spain Leads Foreign Production

Total foreign production for 1947, 1948, and 1949 greatly exceeded that of the United States, although no one country produced as much as the U. S. Spain is now the leading foreign producer of apricots, as shown in the chart below. Mexico and Canada are included as a comparison with the U. S. Also listed are other foreign countries leading in production, and a foreign total.

FOREIGN PRODUCTION

Country	1947	1948	1949*
	Short Tons		
Spain	40,000	60,000	70,000
Iran	55,115	49,604	60,000
Hungary	19,620	18,841	51,808
France	48,501	21,780	39,165
Syria	17,697	38,580	35,000
Australia	34,898	25,000	28,000
Mexico	5,500	5,500	5,500
Canada	2,900	3,800	4,300
Total, foreign	306,762	303,591	389,407



CHERRIES

"Red Cherries"

The decade from 1940 to 1950 will long be remembered as producing something more than records in cherry production or high wartime prices. Twenty or 30 years from now, old-timers will say that it was back in the '40's when the name "sour cherry" began to go out of style and the more popular, more appealing term, "red cherry," was adopted.

Credit for this long overdue change must be given to those growers in Michigan, Wisconsin, and New York who in 1947 founded the National Red Cherry Institute. Wise promoters that they are, these growers realized that, from a merchandising standpoint, to call your product sour is close to committing mayhem. For their perception, growers of the future will owe them a debt of gratitude.

Cherry Christmas

Cherry Christmas, Cherry Pie Time, and National Cherry Week are the three big yearly advertising and promotion programs for the red cherry industry. These are made possible by the National Red Cherry Institute and State commissions. The institute is composed of growers and processors in the following 10 States: Michigan, Wisconsin, New York, Ohio, Pennsylvania, Colorado, Washington, West Virginia, Oregon, and Utah.

The basic budget for the 1949-50 program is $50,000 which is subscribed 50-50 by growers and processors. An additional budget of $60,000, subscribed by growers, is for Cherry Pie Time and Cherry Christmas promotion programs.

Expenditures by the Michigan Cherry Commission for the 1948-49 season totaled approximately $46,000. This included allotments for national and State advertising programs, administration of the commission, and miscellaneous items.

Cherry Acreage Growing

Since 1938 there has been a slight increase in sweet cherry acreage with new plantings made mostly in the Western States. Although California leads all the States, its plantings have decreased by 2,600 acres since 1938. Acreage in sweet cherries has increased in Oregon by 1,000 acres and in Washington by 2,200 acres during the same period.

Red cherry acreage increased very sharply in the early 1930's, principally because of extensive plantings in Michigan. There was a decline in the late 1930's but acreage has gradually climbed since then. Acreage in Michigan is double that of any other State, and it continues to increase slightly each year. A recent survey by the Michigan Crop Reporting Service shows that, because of new plantings, the number of red cherry bearing trees can be expected to increase 16 per cent by 1955, while the number of Michigan sweet cherry bearing trees will increase 20 per cent by 1955.

BEARING ACREAGE BY STATES—1946

	Thousands		Thousands
New York	12.7	Colorado	2.8
Pennsylvania	7.9	Idaho	1.6
Ohio	4.0	Utah	2.1
Michigan	30.7	Washington	11.2
Wisconsin	9.6	Oregon	13.1
Montana	.8	California	12.3

Largest Sweet Cherry Crop in History

1949 was a record year for sweet cherries with a production of 128,000 tons, which was 49 per cent above average and 61 per cent more than in 1948. Largest producing State for 1949 was Washington, thus ending California's leadership in sweet cherry production. Second was California, followed by Oregon. These three States produced 87 per cent of the total sweet cherry crop in 1949.

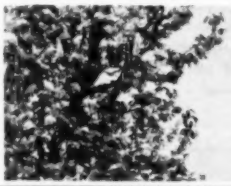
Whereas sweet cherries are produced mostly in the West, greatest production of red cherries is in the Great Lakes States of Michigan, New York, and Wisconsin. Michigan alone produces half of the red cherry crop and aptly deserves the title of Red Cherry State.

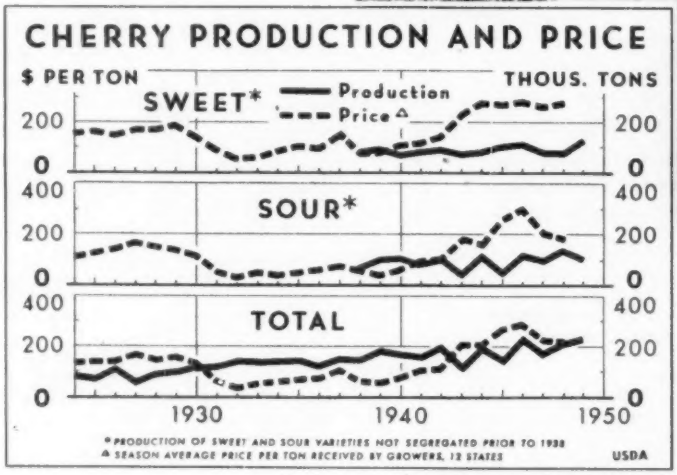
PRODUCTION

	Thousand Tons		
	Total	Sweet	Sour
1938	144	79	65
1939	184	88	97
1940	173	68	105
1941	162	80	81
1942	197	91	105
1943	116	75	41
1944	196	83	112
1945	149	102	47
1946	230	112	117
1947	172	79	93
1948	214	80	135
1949*	230	128	102

The red cherry crop of 102,330 tons was 19 per cent above average, but 24 per cent below 1948's record of 134,760. This was due in part to Wiscon-

(*Continued on page 52*)





*Preliminary.

PEARS

Bartlett Is Supreme

Hundreds of varieties of pears have been bred and tested either on an experimental scale or on a commercial basis but the Bartlett remains the outstanding all-purpose variety. Its adaptability to different climates, soils, and situations accounts for approximately three-fourths of U.S. pear production being of this one variety. It is the major canning and drying variety in the Pacific Coast States, where most of U. S. pears are grown.

The Kieffer variety is popular in eastern pear growing areas, particularly in Michigan, while so-called fall and winter varieties constitute major plantings in Oregon and are grown to a lesser extent in Washington and California.

Shift in Bearing Acreage

Two major factors have been responsible for a drastic change in the bearing acreage picture of pears in the last three decades. The ravages of insects and diseases, particularly pear psylla and pear blight, have been mainly responsible for a sharp decrease in pear growing in eastern

Pear Growers League, San Jose, Calif.

areas. Whereas in 1919 about 30 per cent of the bearing acreage in the U. S. was located in New York, Pennsylvania, and Michigan, by 1946 this percentage had been reduced to less than 20 per cent.

On the other hand, acreage increases in the three Pacific Coast States of Washington, Oregon, and particularly California during the 1920's, have been such that approximately 50 per cent of the bearing acreage in 1946 was concentrated in these three States as compared with 20 per cent in 1919.

BEARING ACREAGE

State	1919	1929	1939	1946
		Thousand Acres		
Washington, all	9.9	16.1	19.0	19.7
Bartlett			13.9	14.8
Other			5.1	4.9
Oregon, all	10.1	15.9	16.6	18.4
Bartlett			7.2	7.8
Other			9.4	10.6
California, all	26.8	64.7	48.3	44.2
Bartlett	24.0	57.2	40.9	38.2
Other	2.8	7.5	7.4	6.0
New York	38.5	29.6	16.2	15.3
Pennsylvania	10.2	7.8	4.8	4.0
Michigan	12.4	11.0	10.3	10.9
Illinois	6.8	7.9	6.6	5.9
Texas	8.7	6.8	6.0	4.6
Other States	93.7	73.9	60.3	51.1
U.S. Total	217.1	233.9	188.1	174.1

Production and Prices Up

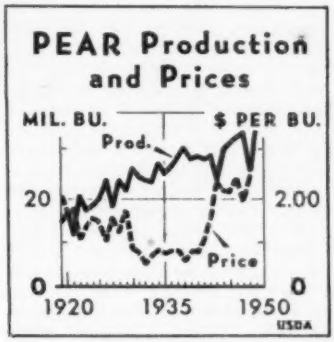
In spite of a decrease in bearing acreage, production of the third most important deciduous tree fruit in the U. S. increased from approximately 15 million bushels in 1919 to a record high of 36 million bushels in 1949.

PRODUCTION— Million Bushels

1936	27	1943	24
1937	29	1944	31
1938	32	1945	33
1939	29	1946	34
1940	30	1947	35
1941	29	1948	26
1942	30	1949*	36

Prices for pears trended downward during the 1920's and 1930's, rose sharply during the war period in response to unusual demand, and stayed up through 1948. (See Chart.)

Bartlett pears for canning and drying purposes brought higher prices on the Pacific Coast in 1948 owing to the short 26 million bushel crop of pears throughout the country.



CANNING

Variety and State	1946	1947	1948
		Tons	
Bartlett			
California	100.00	73.00	120.00
Oregon	82.40	94.00	96.00
Washington	77.50	74.00	110.00
Michigan	66.00	70.00	86.00
Kieffer			
Michigan	37.00	45.00	41.00

DRIED

California			
Fresh basis, all	66.80	50.00	70.00
Bartlett	68.00	50.00	70.00
Dried basis, all	365.00	275.00	385.00
Bartlett	374.00	275.00	385.00

(5.5 tons fresh equivalent to 1 ton dried)

Exports Meager

During the period 1934-38 about 20 per cent of the U. S. pear crop was exported, consisting of approximately 14 per cent fresh pear shipments, 30 per cent canned, and 76 per cent dried. Approximately 86 per cent of this was shipped to Europe. The extent to which this export market has been curtailed is shown by the following figures:

FRESH

Country	1946-47	1947-48	1948-49*
	Thousand Bushels		
Canada	564	374	.6
Mexico	38	25	3
Cuba	56	82	43
Brazil	148	205	106
Sweden	346	94	0
United Kingdom	875	481	0
Belgium & Luxembourg	28	5	61
Total, all countries	2,153	1,409	304

CANNED

	Thousand Pounds		
Canada	190	1,165	91
Cuba	2,151	4,051	3,297
Venezuela	984	846	1,009
United Kingdom	8,382	7	2
Belgium & Luxembourg	555	1,867	35
Switzerland	385	57	7
Philippines	478	39	44
Total, all countries	16,805	10,045	6,338

DRIED

	Thousand Pounds		
Canada	492	11	7
Mexico	100	25	8
Venezuela	94	248	267
Netherlands	90	24	0
Belgium & Luxembourg	66	22	74
France	0	85	0
Switzerland	50	52	9
Total, all countries	1,211	846	710

Increase in Foreign Production

As in the case of U. S. production, estimated 1949 foreign pear production was greater than the 1948 crop, and more than three times greater than total 1949 U.S. production. Much of Central Europe's pears are used for pear cider.

FOREIGN PRODUCTION

Country	1947	1948	1949*
	Thousand Bushels		
Canada	966	789	905
Mexico	598	529	529
France	16,935	15,931	17,000
Germany	17,412	8,000	13,960
Italy	11,155	8,991	11,113
Belgium	6,614	1,323	11,023
Switzerland	16,755	9,259	9,480
Argentina	3,327	5,111	6,000
Total, foreign	120,465	89,884	116,680

CITRUS

Short Supply—High Prices

The skyrocketing effect that a short supply has upon the price of a commodity is shown by the way prices for Florida citrus fruits rose during the 1948-49 season when California and Texas were calculating losses to their citrus crops caused by severe freezes in January, 1949.

During the last week in October, 1948, Florida oranges averaged $2.60 a box in the auction markets, according to the Federal-State Market News Service in Florida. That gave the grower about 10 cents a box for his fruit on the tree. Then in January, a freeze hit the big California crop and even at an hourly orchard heating cost of $600,000 for fuel oil alone the crop couldn't be saved.

Prices for Florida oranges began to soar, until by July 22, the weekly average was $7.99 a box, more than $5 a box on the tree for the grower.

Florida oranges on the auction averaged for the 1948-49 season $4.23 a box. Only twice have there been better annual averages for Florida oranges, and both of those were in war years, $4.48 in 1944-45, and 10 cents more the following year.

The freeze that had such a devastating effect on Texas grapefruit in January, 1949, resulted in Florida receiving an average of $3.77 a box for grapefruit as compared with an average of $3.07 in 1947-48.

And because of the shorter supplies of other citrus, Florida tangerines in 1948-49 sold for the highest price in 20 years, $2.55 per box, 57 cents more than the 1947-48 average.

Prices

Season Average Price Per Box Received By Grower F.O.B. Packed

	1945	1946	1947	1948*
ORANGES				
including Tangerines				
Arizona	4.57	4.27	3.20	5.52
California	4.52	3.18	3.35	4.05
Florida	3.71	2.71	2.12	2.89
Texas	3.40	2.85	2.62	2.47
GRAPEFRUIT				
Arizona	2.20	1.68	1.88	2.37
California	2.71	2.53	2.55	3.40
Florida	2.65	2.18	1.84	2.35
Texas	2.36	2.05	1.56	1.69
LEMONS				
California	4.42	5.46	5.52	7.30

*Preliminary.

20th Century Development

Citrus production in the U.S. prior to 1900 was on a very modest basis. It now more than equals the production of the three major deciduous tree fruits — apples, peaches, pears.

Production and marketing of citrus fruits is a year-round proposition. Oranges in California, for example, are harvested and marketed during a 12-month period, while in Florida, Texas, Louisiana and Arizona, citrus marketing seasons extend from September to July 31. The value of the various citrus fruits included in the table, therefore, is for the marketing season or crop year and does not represent calendar year income.

Total Citrus Production in U. S., and Value: 1935-36 to 1948-49

Year	Production Thousand Boxes	Value Thousand Dollars
1935-36	78,219	118,743
1936-37	92,832	134,582
1937-38	114,792	96,047
1938-39	133,326	87,192
1939-40	123,012	105,504
1940-41	145,709	138,741
1941-42	137,294	180,390
1942-43	154,885	313,772
1943-44	173,981	402,760
1944-45	178,190	423,890
1945-46	182,450	418,559
1946-47	192,030	264,885
1947-48	189,180	206,003
1948-49*	159,670	258,175

Florida Leads In Acreage and Production

Before the severe freezes of the '90's caused a relocation of most of Florida's citrus industry, citrus production in that State was greater than in California. Later, California gained the lead, both in bearing acreage and production of oranges, until recently when Florida again exchanged places with the Golden State.

As will be noted below, orange production is limited to but a few varieties. In California the Navel orange was at one time the outstanding variety. The bearing acreage of this variety, together with the modest acreage devoted to a few miscellaneous sorts ripening during the same period (November to May), has been maintained at about the same level since 1919-20. The bearing acreage of the Valencia variety, which ripens from April until November, has increased during the same period more than 75 per cent.

In Florida the bearing orange acreage has increased 450 per cent in the last three decades. Early and mid-season Florida varieties are marketed from October 1 to April 30, while Florida Valencias reach the market from February 1 to July 31. Tangerines reach the market from November 1 to April 30.

ORANGE ACREAGE AND PRODUCTION

	Acreage 1919-20	Acreage 1948-49	Production 1937-46 Avg.	Production 1948-49*
State	Thousand Acres		Thousand Boxes	
California, all	155.8	239.2	48,902	36,910
Navels & Misc.	92.0	90.0	18,846	11,910
Valencias	63.8	149.2	30,056	25,000
Florida, all	56.7	313.9	39,850	62,700
Early & Midseason		167.5	20,005	32,000
Valencias		122.4	16,485	26,300
Tangerines	3.9	24.0	3,360	4,400
Texas, all	.2	40.5[1]	3,242	3,400
Arizona, all	.5	8.3	795	710
Louisiana, all	1.1	4.5	298	300

[1]No allowance made for Texas trees removed following freeze in January, 1949.

In the four States in which grapefruit is grown, bearing acreage has increased from about 30,000 acres to over 200,000 acres in the last three decades. Leading producing States are Florida and Texas.

GRAPEFRUIT ACREAGE AND PRODUCTION

	Acreage 1919-20	Acreage 1948-49	Production 1937-46 Avg.	Production 1948-49*
State	Thousand Acres		Thousand Boxes	
Florida	25.9	95.0	23,920	30,200
Texas	.1	82.0[1]	17,488	11,300
Arizona	.2	10.3	3,301	1,880
California	2.6	13.2	2,769	2,140

[1]No allowance made for Texas trees removed following freeze in January, 1949.

Production of lemons is chiefly a California industry, while limes are a Florida product. The lemon marketing season extends from November 1 to October 31, that of limes from April 1 to March 31. Italy and California together practically supply the world with lemons.

LEMON BEARING ACREAGE AND PRODUCTION

	Acreage 1919-20	Acreage 1948-49	Production 1937-46 Avg.	Production 1948-49*
State	Thousand Acres		Thousand Boxes	
California	35.6	64.7	12,808	9,930

LIME BEARING ACREAGE AND PRODUCTION

Florida	1.5	4.6	148	200

Per Capita Consumption

The increase in consumption of citrus fruits has been steady, from a total of 16 pounds of the fresh product per person in 1909 to a 1948 total of about 53.8 pounds in a short crop year. Peak consumption of 67.9 pounds occurred in 1944, evidence of increased civilian buying power during war years.

Fresh orange consumption rose from 12.5 in 1909 to 47.4 in 1944, then dropped to 35.4 in 1948. Consumption of fresh grapefruit increased from 0.9 pound to 12.2 pounds per person during these same three decades, along with the development of the grapefruit industry in Florida and Texas.

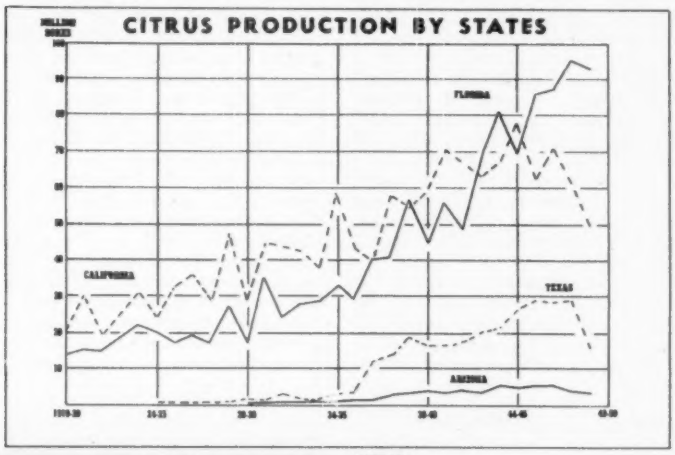
Previous to 1929 the only fruit juice canned to any extent was that of the grape. Per capita consumption of canned orange juice in 1948 totaled 5 pounds, grapefruit juice 3.8, blended orange and grapefruit 2.3, citrus concentrate 1.9, with small amounts of lemon and lime and tangerine juice. The total of 13.2 pounds of citrus juices per person compares with a total of all canned juices (including citrus) of 18.1 pounds per person. These figures do not include frozen citrus concentrates.

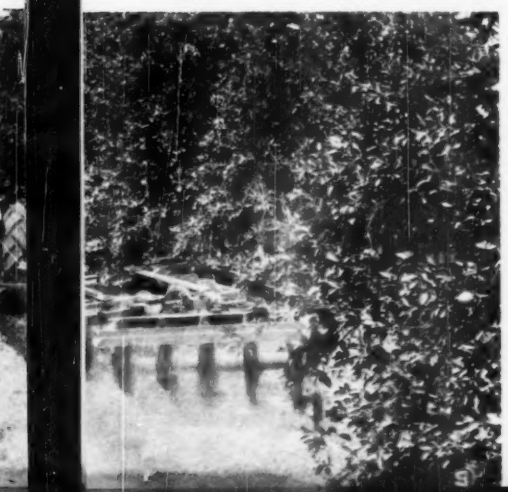
Lemons From Italy

Exports of fresh and processed citrus fruits for 1947-48 were below those of 1946-47. With the lifting of Canadian restrictions on fresh fruit and vegetable imports on October 1, 1949, U.S. citrus growers have been optimistic about the possibility of exporting fresh citrus fruits to Canada, particularly lemons. But their optimism has been dampened by a reciprocal trade agreement whereby the tariff on Italian lemons may be reduced 50 per cent, from 2½ to 1¼ cents per pound.

Italian lemons, it is claimed, could sell in the U.S. for about $2 below the price of U.S. lemons, because of the prevailing low labor rates in Italy. Europe and Great Britain have been Italy's normal markets.

The tables below show major exports of citrus fruits, also total for all countries.





EXPORTS

ORANGES, fresh—Thousand pounds

	1946-47	1947-48	1948-49*
Canada	462,341	388,509	344,401
Mexico	6,318	6,996	3,707
Sweden	33,979	4	0
Netherlands	11,755	8,027	1,140
Belgium & Luxembourg	86,799	71,023	66,974
Switzerland	2,286	4,445	10,809
Total, all countries	685,318	560,572	474,033

GRAPEFRUIT, fresh—Thousand pounds

Canada	133,855	123,250	129,700
Sweden	7,454	24	152
United Kingdom	37,956	23	4
Belgium & Luxembourg	27,350	15,499	23,038
Netherlands	2,956	1,742	343
Switzerland	1,017	2,719	4,475
Total, all countries	212,246	145,475	159,450

LEMONS AND LIMES, fresh—Thousand pounds

Canada	34,639	21,404	7,511
Belgium & Luxembourg	856	1,143	16
Total, all countries	37,575	24,436	9,022

ORANGE JUICE—Thousand gallons

Canada	2,511	2,206	2,468
Venezuela	111	231	343
United Kingdom	1,230	1,328	1,107
Belgium & Luxembourg	333	132	64
Total, all countries	5,863	4,409	4,717

GRAPEFRUIT, canned—Thousand pounds

Canada	1,243	209	337
United Kingdom	41,648	(less than 500)	3
Total, all countries	44,610	773	653

GRAPEFRUIT JUICE—Thousand gallons

Canada	6,796	2,302	3,510
Belgium & Luxembourg	236	96	42
Germany	475	1,928	1
Total, all countries	8,623	4,919	3,847

Imports of citrus fruits into the U.S. include lemons from Italy and limes from Mexico.

IMPORTS

LEMONS—Thousand pounds

	1946-47	1947-48	1948-49*
Italy	421	2,802	11,189

LIMES—Thousand pounds

Mexico	5,099	5,278	5,809

Decrease in Foreign Production

The estimated 1948 total foreign citrus crop was below that of 1947 but greater than the 1946 crop. Orange production, however, was higher and the increase was primarily in Japan.

CITRUS PRODUCTION—foreign countries—Thousand boxes

	1946	1947	1948*
ORANGES (including tangerines)			
Mexico	10,778	10,866	11,653
Italy	11,638	12,123	12,920
Spain	17,772	27,589	25,627
Palestine	9,199	13,000	5,750[1]
Japan	6,020	6,496	15,590
Brazil	30,084	31,600	33,000
Total, all countries	138,797	159,506	164,411

[1]Israel only.

GRAPEFRUIT

Puerto Rico	500	525	525
Palestine	1,238	1,500	1,000
Union of South Africa	752	771	849
Total, all countries	3,919	4,241	4,048

LEMONS

Italy	7,138	8,137	7,386
Spain	1,474	2,756	1,886
Argentina	1,134	1,343	1,044
Total, all countries	12,995	16,068	14,060

LIMES

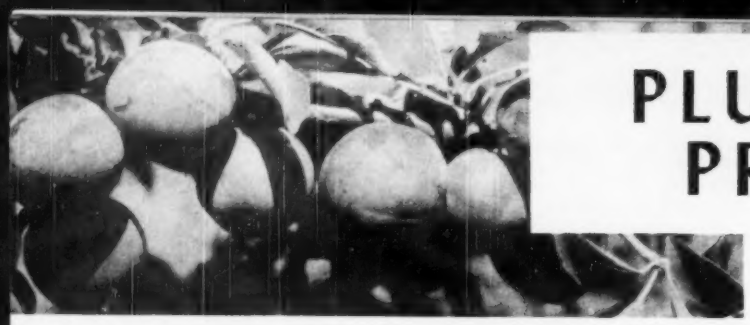
Mexico	1,681	1,684	1,653
Egypt	870	910	775
Total, all countries	3,183	3,196	3,028

Industry Organization

Efforts to control the marketing of the ever-increasing citrus crops and to extend the use of these fruits through research and advertising have resulted in group organization in all citrus growing areas.

From its headquarters in Los Angeles the California Fruit Growers

(*Continued on page 67*)



PLUMS and PRUNES

Plum or Prune?

Horticulturally speaking, all prunes are plums but not all plums are prunes. The basic difference between the two is that certain plums, because of a higher sugar content, are especially adapted to drying. These plums are known as prunes. Prunes are usually marketed in the dried form and are a popular breakfast dish. Prunes are also canned under the name "purple plums," processed as prune juice, and sold fresh. Plums are generally sold fresh but are also canned and frozen.

California Leads in Plums and Prunes

Principal plum producing State is California which produced a crop of 90,000 tons in 1949, one-third above the short 1948 crop and nearly one-fifth above average. Next largest State is Michigan, which produced a crop of 6,200 tons in 1949, three-quarters larger than 1948 and nearly one-

PLUMS

	PRODUCTION—Tons	
	California	Michigan
1939	71,000	5,600
1940	69,000	5,000
1941	71,000	5,900
1942	72,000	4,700
1943	76,000	2,530
1944	92,000	4,500
1945	71,000	1,600
1946	100,000	6,000
1947	74,000	4,000
1948	67,000	3,500
1949*	90,000	6,200

PRUNES

	California	Washington	Oregon	Idaho
1939	462,500	32,900	154,300	23,500
1940	460,000	18,900	42,700	21,500
1941	470,000	22,300	69,400	21,000
1942	430,000	23,500	70,500	18,200
1943	490,000	23,000	104,000	7,800
1944	397,500	25,800	60,400	23,300
1945	565,000	26,000	92,100	28,200
1946	532,500	29,100	101,100	22,400
1947	500,000	23,100	34,400	37,000
1948	455,000	19,000	48,800	20,800
1949*	420,000	28,600	100,900	27,100

half above average. The 1949 total plum crop of 96,000 tons was exceeded by the huge 1946 crop by only 4,000 tons.

California prune production for 1949 was 415,000 tons (fresh basis), 9 per cent less than the 1948 crop and 17 per cent below average. Nearly all these prunes were dried.

Next largest producing State in 1949 was Oregon, with a production of over 100,000 tons. Washington was third with over 28,000 tons and Idaho fourth with slightly over 27,000 tons. In Washington, Oregon, and Idaho, 54,000 tons, or about one-third of the three-State prune crop was sold fresh in 1949, 7 per cent more than in 1948 and 8 per cent above average. In the three States 30,500 tons were canned, twice as many as in 1948. Nearly three times as many prunes were frozen as in 1948. Tonnage for freezing in 1949 totaled 3,200 tons. Production of dried prunes in Washington and Oregon totaled 24,000 tons (fresh basis) in 1949 and 3,875 tons in 1948.

*Preliminary

Prune Bearing Acreage Decreasing

Total prune bearing acreage has steadily decreased from a peak of 244,000 acres in 1929 to 177,000 acres in 1946, the lowest level since 1922. Largest decrease has been in California where prune plantings have grown smaller by 41,000 acres since 1930.

During the same period Oregon lost 21,000 acres and Washington nearly 5,000 acres. Idaho prune acreage has also declined from 7,000 acres in 1924 to under 5,000 acres in 1946.

In 1949 largest acreage in prunes was in California (133,200) with Washington second (79,000), Oregon third (31,000), and Idaho fourth (4,700).

Total plum bearing acreage has also decreased although not to such a large extent as prunes. Total plum acreage in California, Michigan, and New York hit an all-time low of 28,000 acres in 1942 but since then has risen to 31,000 acres in 1946. California's plum acreage totaled over 23,000 acres in 1946, Michigan had over 3,500 acres, and New York registered over 4,000 acres. California, Michigan, and New York all showed increasing trends in plum bearing acreages up to 1946, the last year for which acreage figures are available.

BEARING ACREAGE

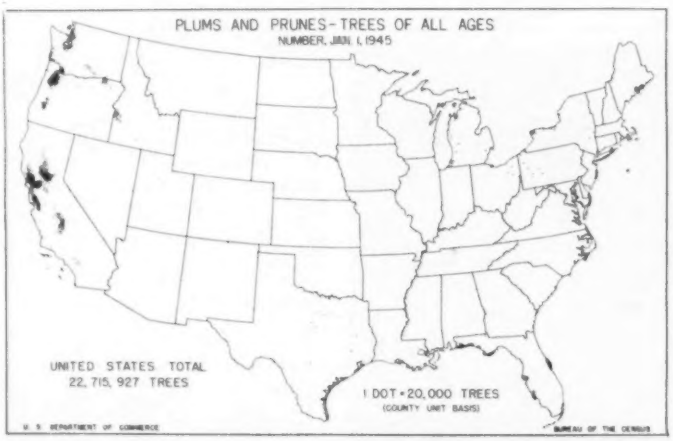
	1940	1941	1942	1943	1944	1945	1946
	Thousands						
PLUMS							
Calif.	22.0	21.5	21.2	21.5	21.8	22.8	23.3
Mich.	2.8	2.8	2.8	3.0	3.3	3.5	3.6
N.Y.	3.9	4.0	4.1	4.2	4.3	4.3	4.2
Totals	28.7	28.3	28.1	28.7	29.4	30.6	31.1
PRUNES							
Idaho	4.1	4.2	4.3	4.5	4.7	4.7	4.7
Wash.	9.4	9.1	8.8	8.5	8.3	8.1	7.9
Oregon	36.2	34.8	33.5	32.1	31.5	31.2	31.0
Calif.	145.2	139.7	137.0	135.8	133.7	133.4	133.2
Totals	194.9	187.8	183.6	180.9	178.2	177.4	176.8

Best Prices in 1946

California growers received about one and a half times as much for their fresh plums per ton as did Michigan growers from 1946 to 1948. In 1946 average price per ton was $146 in California and $95 in Michigan; 1947, $161 in California and $105 in Michigan; and, in 1948, $152 in California and $83.40 in Michigan.

During the last three years the highest price paid for fresh prunes was in Washington in 1946 when growers received $128 per ton. High prices prevailed in all States that year but declined considerably in 1947 and 1948, except in Oregon where growers received the same price as they did in 1946. Season average prices for dried prunes on a fresh basis and

(*Continued on page* 49)


PLUMS AND PRUNES - TREES OF ALL AGES
NUMBER, JAN. 1, 1945
UNITED STATES TOTAL
22,715,927 TREES
1 DOT = 20,000 TREES
(COUNTY UNIT BASIS)
U. S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

GRAPES

Vinifera, Labrusca and Rotundifolia

An apple is an apple, a peach is a peach, but, strictly speaking, grapes grown in America are either native-type American (*Vitis labrusca*), European-type (*Vitis vinifera*), or Muscadine (*Vitis rotundifolia*).

When colonists first came to America, they unsuccessfully attempted to grow European-type grapes which would not survive vigorous eastern winters. Consequently they turned to hardy native grapes of which today's popular Concord is an example.

When the Spaniards introduced European grapes to Mexico, the sun-loving *V. vinifera* spread into the warm coastal areas and interior valleys of California.

Although the European grapes, of which Tokay is an outstanding dessert variety, are limited to four western States, the American grape is grown in nearly every State. The Muscadine grape, which is vigorous and disease-resistant, is grown in the area of the Gulf States and North Carolina, South Carolina, and Georgia. Scuppernong is an outstanding Muscadine.

Trends

California has the most bearing acreage of any State with nearly 500,000 acres of vineyards. As shown in the table, New York has the second largest bearing acreage, followed by Michigan and Ohio. About four-fifths of the total grape acreage consists of European-type grapes grown in California. The remaining one-fifth is mostly American-type.

BEARING ACREAGE—By States—1946

New York	38.8	North Carolina	3.2
New Jersey	1.6	South Carolina	.8
Pennsylvania	9.6	Georgia	1.7
Ohio	13.0	Arkansas	8.9
Indiana	1.2	Arizona	.4
Illinois	1.6	Washington	4.4
Michigan	28.7	Oregon	.6
Iowa	1.5	Calif., all	493.5
Missouri	3.5	Wine varieties	165.3
Kansas	1.6	Table varieties	79.5
Virginia	.7	Raisin varieties	248.7
West Virginia	.5		

Record Production

Production for 1949 was approximately 2.9 million tons, about 100,000 tons below 1948 and 200,000 tons over the 1938-47 average. For each of the last four years, production has been close to 3 million tons. Record crop was 3.16 million tons in 1946.

PRODUCTION

	California	Other States
	Thousand tons	
1936	1,714	183
1937	2,454	272
1938	2,531	140
1939	2,228	221
1940	2,250	216
1941	2,547	178
1942	2,160	236
1943	2,789	176
1944	2,514	198
1945	2,663	118
1946	2,958	202
1947	2,836	200
1948	2,857	187
1949*	2,680	176

For 1949, California led in total production with 2.68 million tons. Second was New York with a yield of 48,000 tons, followed by Michigan with 34,000 tons. The State of Washington was fourth and is showing an increasing production.

An increasing share of the total grape crop is being produced by California. Whereas in the early 1900's California produced about 80 per cent of the crop, since 1940 California's crop has amounted to more than 90 per cent of the total production.

Value Fluctuates Widely

From 1939 to 1946 the total value of the United States grape crop increased more than seven times as the huge wartime demand bid up prices. Although it has fallen by more than half since 1946, value of the crop is still three times larger than in 1939. Falling values for raisin and wine grapes are causing considerable difficulty for California producers.

VALUE OF CROP

	U.S.	California
	Thousand dollars	
1939	39,034	30,470
1940	42,302	34,831
1941	65,725	57,036
1942	85,174	72,187
1943	184,550	169,363
1944	213,689	194,083
1945	164,193	149,876
1946	296,491	267,789
1947	122,147	102,082
1948	120,321	101,797

As indicated in table below, value of California grapes has shown a large decrease since 1946. Value in other States has not fluctuated so greatly.

VALUE OF GRAPE CROP BY UTILIZATION

	1946	1947	1948
California		Dollars	
Raisins	134,598	56,542	58,647
Wine	71,136	17,268	22,134
Table	62,055	28,272	21,016
All other States	28,702	20,065	18,524

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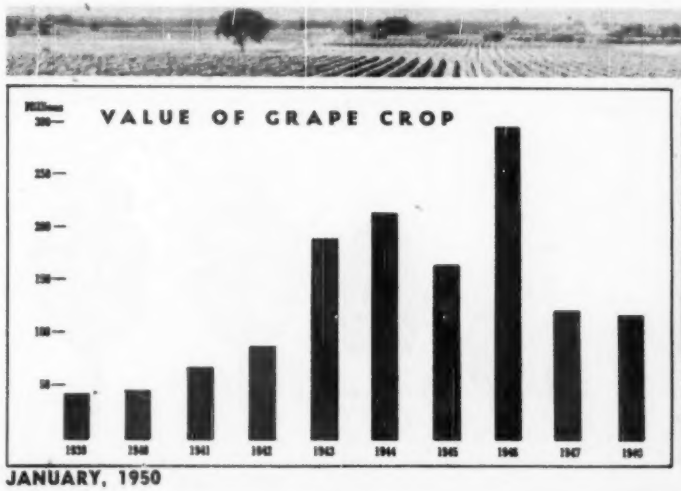


NUTS

Walnuts, Pecans, Almonds, Filberts

The production of nuts in the United States has grown steadily during the past 15 years for all the four major nuts: walnuts, pecans, almonds, and filberts.

Largest and most important of the nuts is the walnut which is produced primarily in California and Oregon. Next in importance comes the pecan which is found in abundance in the southeastern section of the United States. Almonds, which rank third, are another California nut crop. Filberts are grown mostly in the Northwest States of Oregon and Washington.

By joining together in promoting their crops through organizations such as the California Walnut Growers Association and the California Almond Growers Exchange, nut growers have increased the consumption of nuts, and the value of the nut crop has grown steadily.

Showing the most marked change is almonds which have increased from a value to growers of $4 million in 1939 to $15 million in 1948. Walnuts returned to pre-war value in 1948 after profitable wartime increases. Total value of the pecan crop has advanced from $10 million to $20 million during the 10-year period 1939-1948 and filberts, a relatively new crop, have increased in value from around $900,000 to $1½ million during the same period.

VALUE OF CROP—Thousand dollars

	Walnuts	Pecans	Almonds	Filberts
1939	25,279	9,374	4,514	881
1940	27,350	10,970	3,888	801
1941	36,137	12,535	4,224	1,759
1942	43,102	13,244	10,520	1,466
1943	77,323	30,658	12,810	3,457
1944	84,199	30,961	17,856	3,467
1945*	92,188	33,693	19,854	2,933
1946	39,826	25,949	18,371	3,243
1947	24,597	26,780	16,294	2,215
1948	29,653	21,851	14,450	1,581

Increasing Stature

Rivaling the increase in citrus plantings over the past 30 years is the rapid growth in nut tree plantings. Since 1920, total bearing nut acreage for walnuts, almonds, and filberts (excluding pecans) has increased from 102,000 acres to 249,000, or approximately 145 per cent.

Since 1910 the number of almond trees of all ages has quadrupled, number of filbert trees has quadrupled, number of pecan trees has tripled, and number of walnut trees has doubled.

NUMBER OF TREES—Thousands

	1910	1920	1930	1940	1945
Almond	1,578	3,852	4,410	5,471	6,669
Filbert and Hazelnut			579	1,416	2,149
Pecan (improved and seedling)	3,305	4,929	9,147	10,961	10,423
Walnut, English or Persian	1,721	1,973	3,521	3,395	3,668

Steady Crop Increase

As new nut plantings came into bearing, new production records were made for each of the four principal nuts. The season of 1949 set records in the production of walnuts, almonds, and filberts. Walnut production of 80,000 tons was 13 per cent larger than 1948's production and one-fourth above average.

PRODUCTION by kinds—Tons

	Walnuts	Pecans	Almonds	Filberts
1936	45,800	29,894	7,600	2,100
1937	64,400	53,595	20,000	2,570
1938	55,300	37,162	15,000	2,440
1939	62,500	48,530	21,600	3,890
1940	50,800	61,442	12,000	3,210
1941	70,000	60,890	6,000	5,750
1942	61,200	38,687	23,800	4,270
1943	63,800	66,521	17,500	7,030
1944	71,800	71,610	24,000	6,520
1945	70,900	70,588	27,200	5,320
1946	71,900	38,353	37,800	8,450
1947	64,600	59,320	29,200	8,800
1948	71,100	88,834	34,000	6,440
1949*	80,500	65,107	41,000	11,240

Almonds produced 41,000 tons in 1949, one-fifth above 1948's production and double the 10-year average.

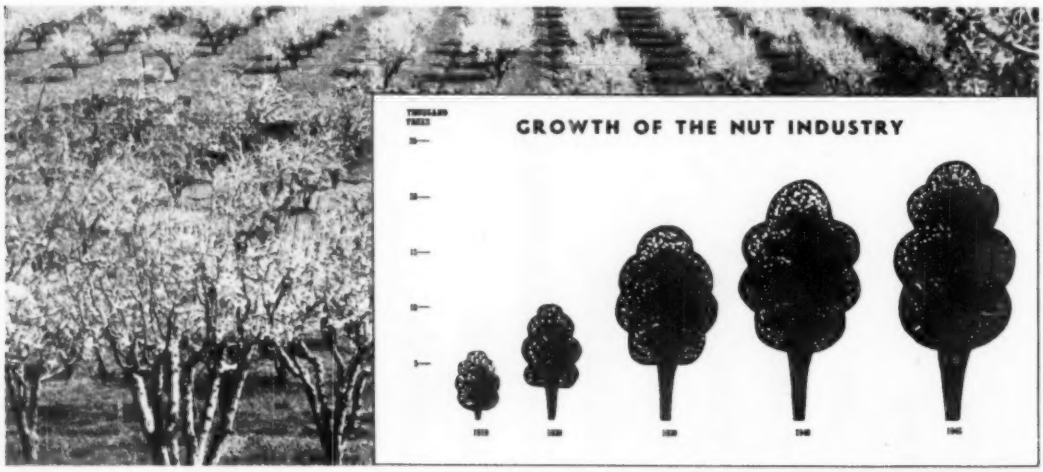
The 1949 filbert production was three-quarters larger than 1948 and two times larger than the 10-year average.

Pecans for 1949 continued an upward trend in production. That the industry is making strides towards converting from wild, or seedling, pecans to improved grafted varieties is shown in the production figures for 1948 and 1949. In both years production of improved varieties exceeded the 10-year average.

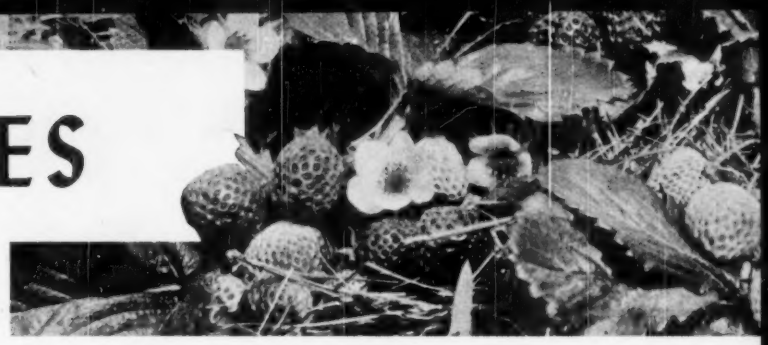
Largest pecan producing State for 1949 was Texas with approximately 16,000 tons. Next came Oklahoma with close to 15,000 tons produced.

(*Continued on page* 48)

*Preliminary.



BERRIES



Strawberries Lead

Largest acreage of any of the berries is planted to the strawberry, of which there were over 120,000 acres in 1948. Either the blueberry or the raspberry ranks next in importance. There were over 43,000 acres of raspberries in 1944, the latest year for which figures are available from the census. However, it is probable that the blueberry now surpasses the raspberry in acreage since there were 43,238 acres in blueberries in 1944 and blueberries have been planted heavily in recent years.

Cranberries rank fourth with over 30,000 acres in 1944. Blackberries and dewberries rank in fifth position, followed by Boysenberries, Loganberries, and Youngberries. Currants and gooseberries are grown in limited areas only.

During the war years, acreage of strawberries dropped sharply. The acreage of strawberries harvested in 1944 was less than 73,000, or about 59 per cent smaller than the 1939 total of 175,000 acres. However, since the war, strawberry acreage slowly climbed and reached over 120,000 in 1948.

Raspberries followed a similar pattern until 1944. Raspberry acreage rose steadily from 1909 until it reached a peak in 1939 of more than 59,000. Between 1939 and 1944 raspberry acreage dropped 15,000 acres to 44,000. Although no figures are available since 1944, raspberry plantings are again increasing.

Acreage in blackberries and dewberries is steadily declining. There were over 50,000 acres in 1899 and less than 22,000 acres in 1944.

Boysenberry and Youngberry acreages show considerable fluctuations. Since the war there have been extensive plantings of these berries in California. In 1947 the acreage of bramble fruits in California was approximately 6,000, or twice as great as recorded for the peak year of 1941. This rapid increase in California was due to the sudden increase in number of frozen food companies.

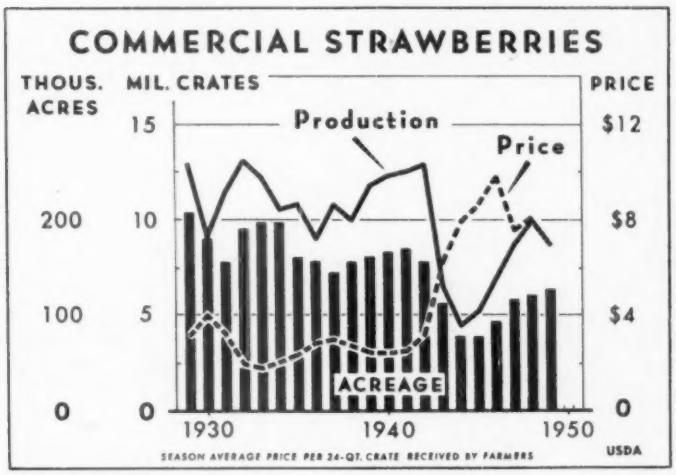
Showing the sharpest increase is the blueberry. Since 1929, blueberry acreage has increased from 20,000 acres to over 43,000 in 1944. Additional plantings since 1944 have further increased blueberry acreage.

Cranberry acreage has shown an increase of 2,400 acres since 1929.

ACREAGE

1919	1929	1939	1944	1947
Blackberries and Dewberries				
46,165	43,895	26,606	21,791	* *
Blueberries				
* *	20,055	31,276	43,238	* *
Boysenberries				
* *	* *	1,932	* *	* *
Loganberries				
3,978	4,165	2,815	* *	* *
Youngberries				
* *	* *	3,642	* *	* *
Raspberries				
50,278	56,715	59,049	43,634	* *
Cranberries				
* *	27,640	28,140	29,100	30,100
Strawberries				
* *	206,890	161,100	77,350	116,360

* *—not available



Maine—A Leading Berry State

According to the Census there were 185,000 acres in small fruits in 1944 (not including cranberries) and Maine, with over 29,000 acres, had more land in small fruits than any other State. Maine's acreage consisted principally of blueberries which grow wild in abundance in the Pine Tree State. Principal States growing cultivated blueberries are New Jersey, North Carolina, Michigan, and Washington.

Leading strawberry State is Louisiana which in 1948 had 19,000 acres. In 1948, Oregon was second with 15,000 and Arkansas third with over 10,000 acres. Fourth was Tennessee with 8,500 acres and Michigan was fifth with 7,500 acres.

STRAWBERRIES—Acreage 1948

Winter	
Florida	4,200
Early Spring	
Louisiana	19,000
Alabama	2,200
Texas	1,400
Calif., S. Dist.	1,250
Mid-Spring	
S. Carolina	250
N. Carolina	2,300
Tennessee	8,500
Arkansas	10,400
Oklahoma	900
Kansas	1,705
Missouri	4,000
Illinois	3,000
Kentucky	5,000
Virginia	4,300
Maryland	3,000
Delaware	1,050
Calif., other	2,800
Late Spring	
New Jersey	3,200
Pennsylvania	1,900
Ohio	2,000
Indiana	1,900
New York	3,500
Michigan	7,500
Wisconsin	2,300
Iowa	840
Utah	950
Washington	6,600
Oregon	15,000

Largest cranberry State is Massachusetts which produces over half of the world's supply. In 1949 preliminary figures show that Massachusetts produced 530,000 barrels, followed by Wisconsin with 190,000 barrels, and New Jersey with 61,000 barrels.

Raspberries are produced mostly in the northern States and, with over 11,000 acres, Michigan has the largest number of acres according to the 1945 Census. New York ranks second with about 8,000 acres and Oregon third with over 4,000 acres.

(*Continued on page 50*)

WASHINGTON REVIEW AND OUTLOOK

By LARSTON D. FARRAR
Washington, D. C.

THERE is a strong feeling among grower representatives and government fruit specialists that the income of fruit growers in 1950 will remain relatively stable, despite the fact that a $2 billion price drop is forecast for farm receipts generally.

Causes for the optimism are as follows:

1) The general economic outlook in America will be very good, with as many dollars moving as in 1949, perhaps on a par with 1948.

2) European nations and some hitherto unstable Far Eastern nations will attain greater economic stability, encouraging a movement towards pre-war trading patterns.

3) Research projects, either now underway or planned for the immediate future, will be helpful to commercial growers and marketers of fresh fruits in all parts of the country.

4) Congress isn't likely to take any action that will decrease present Section 32 authorizations or cut research or other programs affecting the fruit industry.

The Christian Science Monitor

Sixth grade pupils at Boston, Mass., enjoy apples provided under the school lunch program.

Review of 1949

Looking back for a quick glance, 1949 was not considered a "poor" year for fruit growers by Washington observers, although it is conceded that there were problems galore for all agricultural producers.

The developments from Washington and other world capitals that were of greatest interest to fruit growers included:

1) Appropriation by Congress of a much greater sum ($83.5 million) for the School Lunch Program, leaving the entire Section 32 funds (30 per cent of the import duties collected in the fiscal year) available for price support purchases.

2) Pledge by Great Britain to buy $10 million worth of surplus agricultural commodities in this fiscal year for the privilege of using Economic Co-operation Administration funds for a Canadian wheat purchase.

3) Appropriation by Congress of $19 million for use of the Agricultural Research Administration, an increase over the $13,850,000 appropriated for this purpose in the 1949 fiscal year.

4) Withdrawal of the Canadian embargo on certain fruits as a result of ECA and U. S. Department of Agriculture pressure. Canada still is not purchasing any appreciable number of apples or pears but has stepped up purchase of other fruits.

Fruit Price Supports

Uncle Sam didn't spend nearly as much for fruits, proportionately, to support the market as he did on such "big" commodities as cotton, corn, potatoes, wheat, and rye, all experts here agree, and he probably won't.

No breakdown of the figures for all price support programs is available to prove this assertion, but it is obvious from the fact that Commodity Credit Corporation losses on grapefruit juice, dried fruit, and other miscellaneous products totaled only $16,959,757 through August 31, 1949, while losses from all operations of the CCC totaled, literally, billions of dollars.

Generally, support operations of the USDA for fruits fall into three categories: 1) Price support loans, such as those on dried fruits; 2) price support purchases of raisins, etc.; and 3) surplus removal of fresh fruit under Section 32.

Fruits purchased in price support operations are being used to "match" purchases by other nations of similar fruits, as in the case of Great Britain, which so far has placed orders for $2 million worth of prunes and raisins and $2 million worth of fresh apples and actually will receive $8 million worth of these commodities through the gift of the USDA.

USDA experts, private industry sources, and a large number of political leaders feel that the probabilities of developing a more stable fruit industry, price-wise, lie in research and advertising so as to increase consumption of fruit products in America.

If it were possible through intensive and extensive advertising to increase the amounts of fruits consumed by families by only five to eight per cent, prices not only would be firm, but would go higher.

The consumer demand for fruit is increasing, slowly but surely, while production is not increasing commensurately over the long haul. Given enough years in which new acreage planted in fruit trees or vines did not equal the amount pulled or neglected, it would be possible to have the same situation as that enjoyed by the coffee growers today.

But there is no such chance that fruit growers will allow productive trees to go to waste as did the Brazilian coffee plantation owners. Also, other nations—France, Italy, and Greece, to mention only a few—are spurring their production of fruits.

Foreign Markets

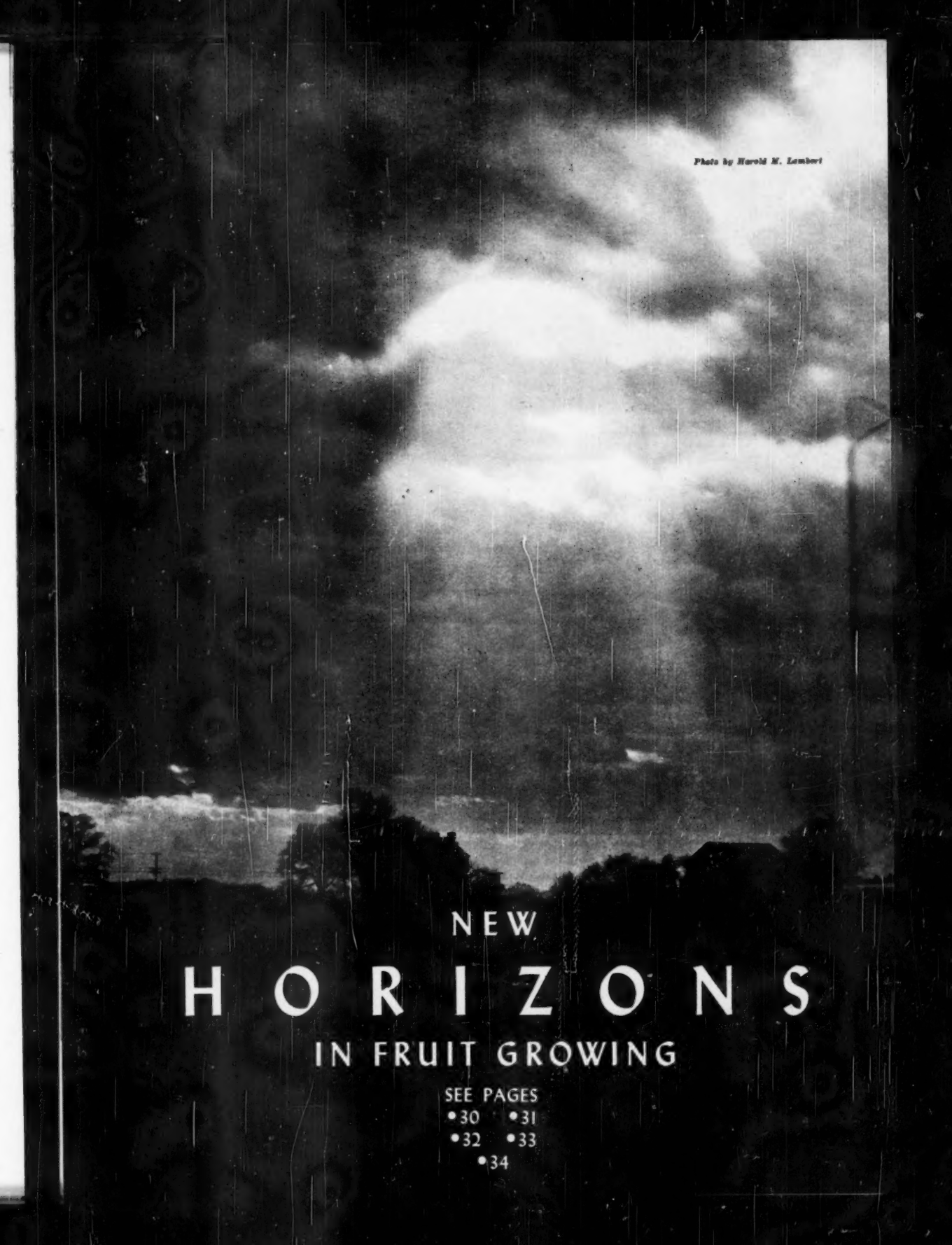
Biggest single problem facing American fruit growers is revival of their traditional export trade patterns. Some inconclusive steps toward this goal were taken in 1949 by the ECA, and it is hoped 1950 will see some improvement along this line.

If other nations, particularly those of western Europe, ever get into the position of being able to buy fruits on as vast a scale as their citizens undoubtedly wish, American producers will be hard put to supply the demand.

Uncle Sam's approach to solving the problem of upset trade patterns has been based to a large extent on the program of the ECA, which contemplates solving Europe's economic problems by using billions of American dollars. This program could be upset considerably if the Republicans were to attack it vigorously this year, for it hardly has escaped the observation of the average man that our national deficit is almost exactly the size of the current annual expenditures for ECA—$5 billion.

Also, it is becoming apparent that other nations look upon the Marshall

(*Continued on page* 53)



NEW HORIZONS IN FRUIT GROWING

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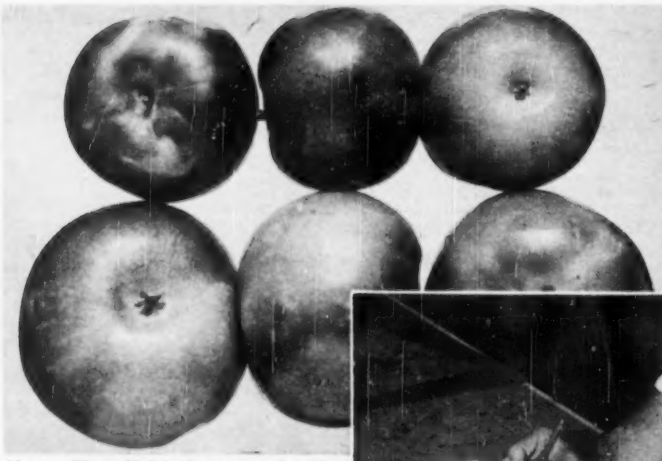
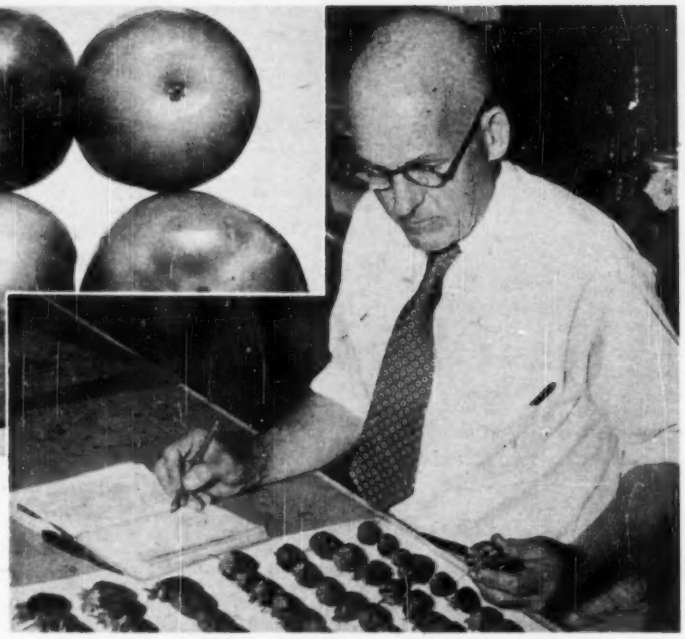


Above—Giant McIntosh compared with normal size fruits. Giant fruits are about twice as heavy and a third larger.



Dr. George M. Darrow checks fruits in strawberry breeding work.

The New GIANT FRUITS

IN THE classic children's tale of "Jack and the Beanstalk" little did Jack realize that the magic seeds would grow and grow into the heavens until he could climb the beanstalk and win the goose that laid the golden egg.

Just as the giant beanstalk amazed Jack, so does the breeding of giant fruit through polyploidy seem beyond belief. The story, as revealed by Dr. George Darrow of the U. S. Department of Agriculture, is almost like a fairy tale. Fruits double the size of these we now know can be produced by the fruit breeder in almost the same way the chemist synthesizes new compounds. Giant berries have been produced. Raspberries with stronger canes, sturdier strawberry plants, and blackberries combining the highest flavor of several varieties have been grown.

Tremendous new horizons are opened by this new method of breeding. Great advances in breeding have been made in the past century, and to these advances can now be added those obtainable through polyploid breeding.

Normally, fruit varieties are diploids; that is, they have two sets of chromosomes per cell. Every time a cell divides in growth, each chromosome splits and the two new cells have the same number of chromosomes as the parent cell. However, when the wall between the cells does not form, double the number of chromosomes results. Doubling the chromosome number can be made to occur artificially through the use of a chemical called colchicine; this was first discovered in 1937. Varieties with increased numbers of chromosomes per cell are called polyploids. Besides producing larger fruit, there is also a good chance that some varieties may be made self-fertile by polyploids, thus making unnecessary provision for cross-pollination in some orchard plantings.

Many fruit growers are familiar with giant sports which occasionally occur on orchard trees. Giant sports are a natural occurrence of an increase in chromosomes in the fruit cells. A study of giant apple sports at Michigan's Graham Branch Experiment Station showed that the trees producing giant fruits were characteristically very spreading with wide angled branching. The giant fruits were 49 to 110 per cent larger than comparable normal ones. Probably, giant sports that are entirely tetraploids produce fruits of just twice normal size.

The technique of inducing polyploidy involves using cotton soaked in colchicine which is applied to the tip of a branch. The colchicine stimulates the formation of polyploid cells and buds from the affected branch are used for propagating by grafting or budding.

Inducing polyploidy to produce

(*Continued on page* 58)

Trees of the giant McIntosh show characteristic wide-angle branching.

Photo by Ewing Galloway

14 MILLION MORE FRUIT CONSUMERS

THAT'S a big order, but it is reliably estimated that in the next 10 years we will have a population increase of 14 million, and in 25 years it will grow to at least 37 million.

Such is the bright horizon of fruit consumption in the years to come. This rapid growth of a people already indoctrinated to a balanced diet of fruit means that we will need in a short 10 years an increase over today's average production of major fruits as follows:

Apples	**10 million more bushels**
Peaches	**6 million more bushels**
Pears	**3 million more bushels**
Oranges	**8 million more boxes**
Grapefruit	**4 million more boxes**

Our present plantings of these fruits can hardly be expected to serve this increased demand. In addition, there is a definite per capita trend to increased use of fruit, and, if this continues or expands, shortages in the future are more likely than surpluses.

Of great importance and demanding immediate consideration are the record-breaking number of marriages and births in the years immediately following the war. In 1946, total marriages reached a peak of 2,291,000, and, in three years, declined to a normal of 1.4 million. In 1948, a record of 3.6 babies was born. While a decline was expected, 1949 birth certificates continued to increase. A normal of 18 births per 1,000 population jumped to 24.1 or, roughly, an increase of one-third. The most rapid rise in population, therefore, is in the years immediately ahead. Kindergartens and grade schools, already over-crowded, hold millions of new and hungry mouths for fruit.

Nearly every business is taking into account a sharp increase in population, and studies completed by the Bureau of Agricultural Economics pretty definitely establish where these increases will occur. By studying the table below, fruit growers will learn where the great markets of the future are to be found.

The center of population of the United States has been gradually shifting farther west. After the last census, it was at Cincinnati, Ohio. It is now estimated that the center of the United States, by a queer coincidence, will be in Fruit City, Mo., where, strangely, also, little fruit is grown.

A population shift so far west will have more significance to fruit growers than the name of the town, for it definitely establishes that distribution will be facilitated and that both western and middle western growers will find their markets more accessible.

All the figures on future fruit consumption represent normal growth. The market for fruit is expanding; but the extent to which per capita consumption can be increased depends upon the efforts of growers to promote and advertise the value of fruit to the great new army of Americans which is flooding our population.

PROSPECTIVE GROWTH IN U. S. POPULATION
(In thousands)

	Est. Population July 1, 1950		Prob. Population July 1, 1960		Population Growth Apr., '40-July, '50		July, '50-July, '60	
		% of U.S.		% of U.S.		Per cent		Per cent
U. S.	151,500	100.00	165,525	100.00	19,831	15.06	14,025	9.26
New England	9,454	6.24	9,865	5.96	1,017	12.05	411	4.34
Middle Atlantic	30,482	20.12	32,559	19.67	2,942	10.68	2,077	6.81
E. North Central	30,830	20.35	33,684	20.35	4,204	15.79	2,354	9.26
W. North Central	14,271	9.42	14,715	8.89	754	5.58	444	3.11
S. Atlantic	20,180	13.32	22,048	13.32	2,357	13.22	1,868	9.26
E. South Central	11,398	7.52	12,448	7.52	615	5.71	1,055	9.26
W. South Central	14,605	9.64	15,741	9.51	1,540	11.79	1,136	7.78
Mountain	4,878	3.22	5,330	3.22	728	17.54	452	9.26
Pacific	15,407	10.17	19,135	11.56	5,674	58.30	3,728	24.20

Source: Based on projections by Bureau of Agricultural Economics, which bring over-all Bureau of Census projections up to date and add regional estimates.

Photo by John Stark

Building the two-acre pond to supply spray water for the Orchard of Tomorrow.

ORCHARD OF TOMORROW

BY PAUL STARK, JR.

Missouri demonstrates modern planting methods to meet production and marketing problems of 1965.

THE successful Orchard of Tomorrow must be geared to growing and marketing conditions of 1954 as it comes into commercial production, and of 1965 as it hits its prime. It must produce top quality fruit of the best varieties that will command premium prices on the markets of the future. Cost of production per bushel must be low, and this means that every phase of orchard operations will have to be carried on in the most efficient manner.

Site and soil must be selected to give frost protection and deep drainage in the sub-soil for better rooting, resulting in healthier and more productive trees. The grower must be progressive and aggressive, quick to take advantage of latest practices that have proven to be profitable. Soil and moisture must be conserved and built up to promote vigor, fruit size, and production that will annually pack a car or more of apples to the acre under midwestern conditions.

It was these factors that were carefully considered in the planning of the Orchard of Tomorrow Day in Cooper County, Missouri, November 11, 1949, a project set up for Missouri by able Extension Horticulturist William R. Martin, Jr. An added attraction was the World's Largest Apple Pie, six feet in diameter and 874.4 pounds in weight. The Golden Delicious Apple Growers Association supplied the baker with 22 bushels of fruit for the filling. What's more, it was proclaimed by the 2,000 visitors the best pie ever baked.

Photo by John Stark

Ben Trout, Boonville, Mo., cuts his masterpiece, the world's largest pie.

Photo by Missouri Ruralist

H. W. Guengerich, past president Missouri State Horticultural Society, prunes peach tree roots preparatory to planting.

The orchard of one of Missouri's successful and progressive growers, John J. Bell, was chosen as the site of the demonstration. John is carrying on the fruit growing program of his father, the late C. C. Bell, near Boonville. He operates about 200 acres of bearing orchards and plans to build up his acreage to around 300 acres over a period of the next five to seven years. John is a good grower of quality apples, puts up a nice pack, and has faith in the future of the apple business, especially with quality apples of the right varieties.

(*Continued on page* 44)

FRUIT RESEARCH and SCIENCE

RESEARCH is fascinating business and the urge to try new things and develop new methods is strong in American people. Every fruit grower at one time or another experiments a little. The fruit industry is fortunate, however, that it has a well-organized research program at its disposal and that this program is in the hands of capable workers in State colleges, experiment stations, and industrial laboratories. These men have brought about improvements in the fruit industry which have added millions to the value of the fruit crop.

Research carried on for the fruit industry is tremendous. Each year the research workers report on significant findings at the meetings of their professional organization—the American Society for Horticultural Science. So that readers of AMERICAN FRUIT GROWER can keep up with what's new in research in their own State as well as in other States, some recent findings have been summarized below. These reports are the results of tests and experiments and no recommendations are made. For further information, consult your State extension workers.

Leaf color indicates nitrogen needs. Leaf color seems to be particularly useful in indicating the level of nitrogen in apples, peaches, and prunes, according to Damon Boynton, O. C. Compton, and Elwood Fisher of Cornell University. Standard color values have been set up for use with McIntosh in New York.

In Virginia, G. M. Shear and Frank Horsfall found a similar correlation between leaf color and nitrogen levels for York and Stayman apples. They found that the same leaf color in York indicates a higher nitrogen level than it did in the case of Stayman leaves.

Blossom thinning affects peach fruit bud hardiness. Experiments in New York State by L. J. Edgerton of Cornell University show that buds on peach trees that had been blossom thinned by dinitro compounds were hardier than buds on those trees which were not blossom thinned but were subsequently hand thinned. During the winter of 1947-48 in an Elberta orchard in Orange County, New York, the temperature reached —16° F. Trees blossom thinned showed 16 live buds per foot of twig growth April 1, 1948, whereas check trees showed seven live buds per foot.

Hardiness of peach buds. C. E. Chapin of the University of Illinois tested the relative hardiness of peach buds by exposing them to various temperatures in a deep freeze unit. It was found that the point of greatest hardiness of fruit buds was reached after the rest period was broken or near its end. It was also found that the killing point of peach fruit buds fluctuates directly with winter temperature changes and may rise as much as 11 degrees after a warm period or fall five to six degrees after a cold spell.

Critical range for peach blossoms was 24 to 26 degrees F. The more tender varieties were severely injured at the upper limit; Elberta intermediate; and the more hardy varieties were killed at 24° F. At shuck fall the fruit was of about the same degree of hardiness as at bloom although some varieties showed more hardiness at this stage.

Three methods of pruning Elberta trees. Aubrey D. Hibbard, University of Missouri, found that the trend towards lighter pruning of peach trees is a sound practice although a general recommendation must await further study. He tested three peach pruning methods: moderate, light, and corrective. In corrective pruning a minimum amount of pruning is given. Corrective pruning gave greater yields at lower cost.

Tomato lug is best peach container. Tests of peach containers by D. C. Alderman, Louisiana Agricultural Experiment Station, showed that the tomato lug and the Spartan boxes gave the best overall performance. Bushel containers failed to prevent excessive bruising of peaches in transit. Although the tomato lug scored well on all points, neither growers nor wholesalers are prepared to handle this box, it was pointed out.

Elgetol for chemical thinning in Northwest. Results of three years' work with chemical thinning of apples by L. P. Batjer and A. H. Thompson, USDA, show that Elgetol gives most consistent and effective results in the Northwest. Results with naphthalene acetic acid were more erratic than with Elgetol. A significant point revealed is that Elgetol sprays are less likely to overthin under Northwest conditions than under eastern conditions.

Increasing pear storage life. Methods to increase the storage life of pears through modified atmosphere storage worked out by F. W. Allen and L. L. Claypool, University of California, show that in an atmosphere of 5 to 10 per cent carbon dioxide and 2½ per cent oxygen, pears at 32° F. remained in good condition and ripened satisfactorily after nearly six months, or almost twice the usual storage period.

(*Continued on page* 54)

—*Ewing Galloway*

FROZEN ASSETS IN PROCESSING

A FACET of the fruit processing industry that glows with a brilliance sufficient to attract the attention of the entire fruit industry is that of frozen orange juice concentrate.

Over eight million boxes of tree-ripened oranges converted into as many gallons of frozen concentrated juice is the record production the past season (November to June, 1948-49) of the Florida orange industry.

This compares with the conversion of less than half a million boxes only three years ago. And estimates for the coming season are for 15 to 25 million gallons of the golden product, with unlimited possibilities and potentialities for development of other frozen citrus and deciduous fruit concentrates. But that's getting ahead of our story.

Let's go back to World War II when canned unfrozen orange juice concentrate was produced in large quantity. This pasteurized product was easy to use but most housewives preferred to squeeze their own orange juice in order to be assured of a fresh-tasting product. Pasteurization at high temperatures not only destroys some vitamins along with bacteria but also alters delicate fruit flavors.

Then American ingenuity applied the vacuum principle to the concentrating of orange juice, evaporating the water from the fresh juice at low temperatures of around 60 degrees F. Result: A concentrated juice of about 55 per cent solids which is diluted to 40 per cent solids with additional fresh orange juice and is then frozen. Packaged in six-ounce cans, the juice is maintained under refrigeration at zero until it reaches the ultimate purchaser—the housewife.

By merely adding three parts of water, the housewife quickly reconverts the six ounces of frozen concentrate into one and one-half pints of chilled orange juice, equivalent in all respects to the fresh product, in taste, consistency, fragrance, and vitamin C—without the bother and waste involved in squeezing nine to 12 good-sized oranges which would be required to make the same amount of juice.

As an indication of the reception accorded the concentrate by the housewife, sales represent 30 per cent of total frozen food volume and it is outselling frozen peas, the traditional best seller in the frozen food field. Yet because of limited supply it is claimed only 25 per cent of U. S. housewives are acquainted with it.

Major reasons for the demand are quality of the product, ease of preparation, extensive publicity, and reasonable price. Processors have set up arbitrary standards of quality based on U. S. Bureau of Plant Industry findings which require the finished concentrate blend in general to be more than 50 per cent above the minimum for canned juice. A premium is paid by the processors for quality fruit. This high quality requirement it is felt will have a bearing on the entire processing industry.

Costly equipment has limited the processing of the concentrate thus far to a few companies in Florida where the product was first developed. Expansion is taking place in Florida and plants are being established in California. The concentrate at present is being sold to retail stores equipped with freezers—approximately 100,000 outlets, many of which have not yet been serviced. But activity also is along lines to develop lower cost freezers for handling only frozen juice concentrate.

The vacuum method has brought the fruit industry to the crossroads of what appears to be an unlimited outlet for both citrus and deciduous fruit juices. The process has been successfully applied to grapefruit juice and lemonade and to grapes, apples, cranberries, and pineapples. Already frozen grape juice sales have been almost on a par with the frozen orange juice concentrate where the two have been

(*Continued on page* 38)

Over 100 models of MYERS POWER SPRAYERS

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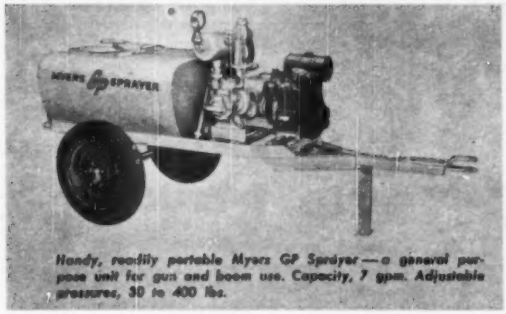
You get "built-to-order" efficiency for your sprayer dollars . . . pay no premium for capacity you don't need . . . when you depend on your Myers dealer! He matches your exact needs because he handles today's **most complete** line: A full range of compact, power-packed wheel and skid models; power take-off and engine-driven; reliable rigs that are light in weight yet heavy on performance and endurance — all highly simplified, unusually adaptable and equipped with specially treated steel tanks. Only your Myers dealer can offer you the faster, lower-cost effectiveness of famous Bulldozer Pumps. And he is always ready with expert service for your Myers Sprayers. Coupon brings his name and catalogs.

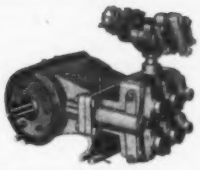
Speedy, labor-saving Silver Cloud Spray Head offers new economy for effective orchard protection. One-man operation from any sprayer. Equipped with 12 guns or 8 guns — oscillating and adjustable to any angle for thorough coverage of every leaf.

CAPACITIES — 6 to 50 gpm.
PRESSURES — 30 to 800 lbs.



Handy, readily portable Myers GP Sprayer — a general purpose unit for gun and boom use. Capacity, 7 gpm. Adjustable pressures, 30 to 400 lbs.

Dependable Myers Silver Cloud Sprayers — finest built for fruit growers. Types and sizes for largest or smallest acreages.



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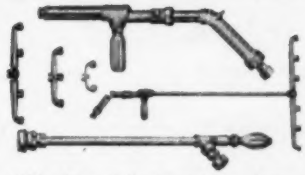

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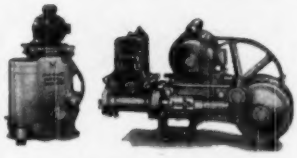

Myers Power Pumps specially suited to fruit growers' needs—for drainage, irrigation, fire protection and many other uses.

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NEW POWER like the brand-new 6-cylinder "Rouge 254" truck engine. Thus, for 1950 you have a choice of four great engines, two Sixes, and the only two V-8's in trucking. Only Ford gives you a choice of V-8 or Six.

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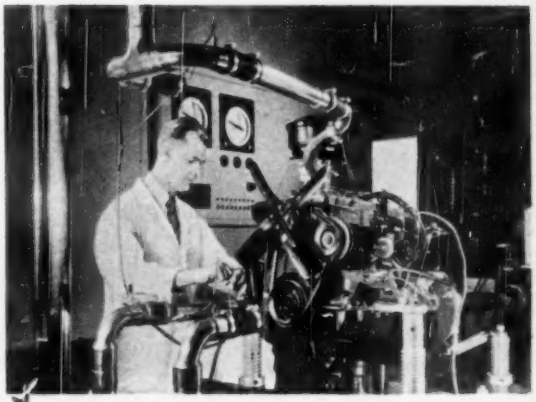
New models! New power! New features! You'll find all these smart ideas in Ford Trucks for 1950. And you'll find the smartest idea of them all . . . Bonus Built construction which means big reserves of strength and power. That's why a 1950 Ford Truck is the smart buy for you. Your Ford Dealer can arrange quick delivery on most models. See him today!



NEW 110-HORSEPOWER SIX! The new "Rouge 254" makes the 1950 Ford F-6 the most powerful 6-cylinder truck Ford has built. The ultra-modern "254" has Free-Turn exhaust valves, Autothermic pistons, chrome-plated top piston ring, High-Lift camshaft, and many other power-producing, cost-saving, smart ideas. A brand-new, 4-speed Synchro-Silent transmission is standard equipment with the new "254" engine.

Model F-2; 5,700 lbs. G.V.W. Express or Stake

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No. 1 in choice of engine types. Only Ford gives you a choice of V-8 or six-cylinder engine design.

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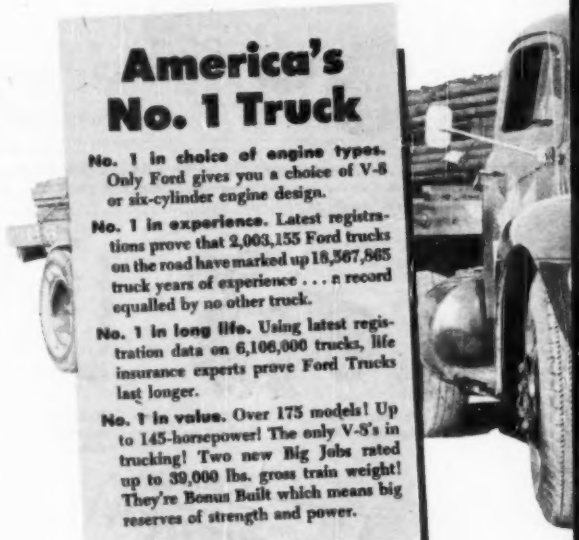

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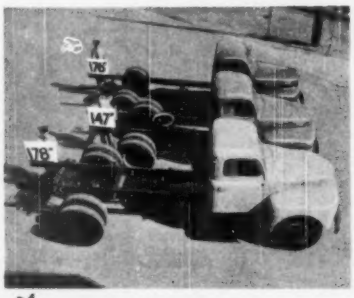
★ **NEW AIR BRAKES** available on the Ford Model F-8 Big Job combine smooth flexibility with immediate, positive action.



★ **NEW WHEELBASES!** Three of them for 1950 Ford Trucks. Models F-5 and F-6 now have a 176-in. wheelbase for bodies in the 15-ft. range. The 145-horsepower Ford Big Jobs have added two new wheelbases to get a total of five. First, a 147-in. wheelbase for tractors and dump trucks. Second, a 178-in. wheelbase for 15-ft. bodies.

★ **NEW PARCEL DELIVERY!** Forward control chassis with grille, windshield and quarter-windows. You add your choice of bodies. Available in Series F-3 and F-5 (Special order).

★ New single-speed rear axle for F-8 ★ New extra-heavy duty clutch with "254" engine ★ Million Dollar Cab ★ Air Wing door glass ventilators ★ Level Action cab mounting ★ New Double Channel frame for Big Jobs ★ Gyro-Grip Clutch ★ New single-speed axle for F-6 ★ Roll Action Steering ★ New extra-heavy duty drive line for F-6 ★ Quadrax rear axles ★ 4 engines—Choice of V-8 or Six ★ New heavy duty, 3-speed Synchro-Silent transmission available for F-1 to F-3 ★ Choice of over 175 models ★ Bonus Built construction.

One of many 145-horsepower Ford F-8 Trucks operated by Michigan Motor Freight Lines, Inc. of Detroit, Mich.

Model F-5 Cab-Over-Engine 14,000 lbs. G.V.W.

Model F-5 School Bus Chassis Wheelbases; 158 and 194 in.

Model F-6 Cab-Over-Engine 16,000 lbs. G.V.W.

Model F-6; 15,500 lbs. G.V.W. Wheelbases; 134, 158 and 176 in.

Model F-7; 19,000 lbs. G.V.W. 35,000 lbs. G.T.W.

Model F-8; 21,500 lbs. G.V.W. 39,000 lbs. G.T.W.

FORD TRUCKS LAST LONGER

Using latest registration data on 6,106,000 trucks, life insurance experts prove Ford Trucks last longer

Don't let Orchard Pests GET STARTED

Shell Dormant Oils are highly paraffinic—this means highest toxicity to eggs and larvae as proved through years of Dormant Oil research. These oils contain no water; hence they cannot freeze in cold-weather storage.

For greatest economy—SHELL NEUTROL

This highly refined petroleum insecticide has a special "balanced" emulsifier. When mixed with water in recommended proportions the emulsion is quick-breaking . . . the oil sticks to the tree while the water runs off. Wastage is reduced to an absolute minimum.

For wide latitude—SHELL NEUTRONA

A somewhat more stable emulsion is secured with this Dormant Oil. It is particularly adaptable where extremely hard water is encountered or where agitation is insufficient to handle quick-breaking emulsions.

For a high-grade tank mix oil—SHELL HELIX 22

This popular oil is for those who prefer to add their own emulsifier at the tank. Helix 22 is a specially refined, 100% petroleum product containing no inert materials.

See your Shell Chemical dealer, or write for additional information.

SHELL CHEMICAL CORPORATION

EASTERN DIVISION: 500 Fifth Avenue, New York 18
WESTERN DIVISION: 100 Bush Street, San Francisco 6
Los Angeles • Houston • St. Louis • Chicago • Cleveland • Boston • Detroit • Newark

PROCESSING

(*Continued from page* 34)

offered in the same area. With no seasonal limitation on the frozen juices, they are gaining on other soft drinks in soda fountains.

The gain in per capita consumption of fruits processed by other means has by no means been as phenomenal as that of orange juice concentrate; however, the gain has been steady in most instances. Canned fruit consumption, for example, has risen from 3.6 pounds in 1910 to 17.2 pounds in 1948.

Greatest processed fruit increase has been in fruit juices, from less than one-half pound in 1910 to 18.1 pounds in 1948. This does not include frozen juices. Citrus juices (not frozen) accounted for 13.2 pounds of the 1948 juice total. In frozen fruits, the increase has been from but a small amount in 1925 to almost three pounds in 1948. Consumption of dried fruits has changed from 3.4 pounds in 1910 to four pounds in 1948.

The percentage of the various fruits utilized for processing varies from a low of 26 to a high of 82, as shown by the following figures which are based on the 1946-48 average production.

	1946-48* Percent
Total Citrus	39
Oranges, including tangerines	35
Grapefruit	51
Apples	26
Peaches	40
Pears	40
Plum & Prunes	82
Apricots	80
Cherries	70
Grapes	80

*For citrus, three-year average, 1946-47 to 1948-49.

CITRUS

For the three-year average, 1946-47-1948-49, about 39 per cent of the citrus crop having value was processed. Oranges, including tangerines, were processed to the extent of 35 per cent, while grapefruit processing passed the 50 per cent mark.

Of the commercial lemon crop, which is produced in California, about a quarter of the 1948-49 crop was processed. Florida, where limes are produced commercially, processed 18 per cent of its 1948-49 crop.

CITRUS—Total processed—Thousand tons.	
1940-41	1,513
1945-46	2,199
1948-49	2,757

CHERRIES

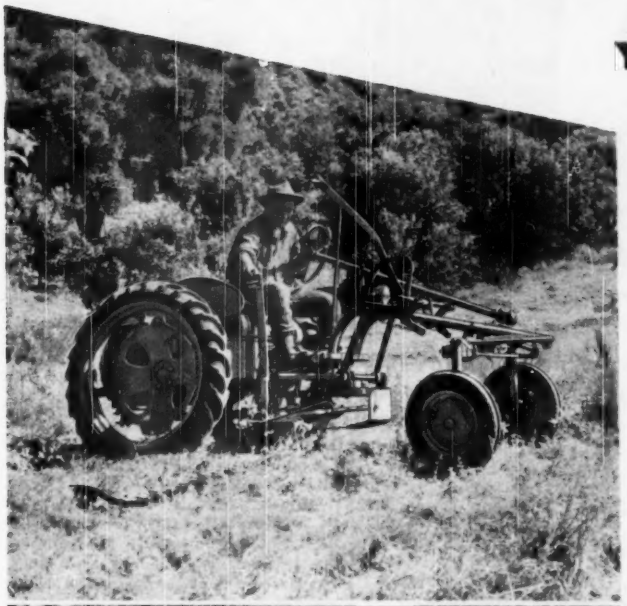
While the three-year average shows 70 per cent of the cherry crop as being processed, the 1948 processing percentage was 76. Of this 76 per cent, 51 per cent was canned, 29 per cent frozen, and 20 per cent brined.

Of the 58 per cent processed sweet cherries in 1948, 34 per cent was

(*Continued on page* 41)

TO completely POWER

YOUR ORCHARD



It's just as wasteful to over-power a job as to under-power it. Here's a low-cost way to have the *right size* tractor for the work to be done.

Every orchard has jobs the Allis-Chalmers Model G Tractor will do better or at lower cost than any other kind of power. In some orchards, the Model G solves every power need. With it you can have a line of quick-hitch, front-mounted implements that may well equip you to power a wider range of orchard care tasks than ever.

If you now own a larger tractor, why tie it up with light jobs the Model G can do on quarts of fuel instead of gallons? During busy seasons, this extra power plant can prove "worth its weight in gold."

For Any Size or Type of Orchard

Actually, the rear-engine Model G is now used for all kinds of farm work — on all kinds of crops — on all sizes of farms.

In the orchard, this versatility extends from mowing with the field-weight 5-foot mower to plowing with a front-mounted moldboard or disc plow — plus a score of power chores between. Everyday usefulness more than justifies investment in the Model G.

For *all* jobs on some farms . . . for some jobs on *all* farms . . . to *completely* power *your* orchard, own the . . .

Rear Engine G Tractor

TO BETTER LIVING
TO BETTER FARMING
TO MORE PROFIT

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Grape Growers Report Nearest Ideal Control for Black Rot Is Du Pont "Fermate"

The nearest perfect fungicide for black rot of grapes that has yet been discovered is Du Pont "Fermate." Results of the past few seasons in many commercial vineyards and experimental tests show it gives by far the best control and does it without burning the foliage, dwarfing the berries or delaying ripening. In fact, growers in many sections say that "Fermate" put them back in business after they had about given up hope of producing profitable crops.

Just look at the record:

IN NEW YORK—In two seasons at the Geneva Experiment Station, "Fermate" increased yields, boosted vine growth and improved berry size, whereas the old standard fungicide cut yields, reduced vine growth and delayed ripening.

In Ulster County, N. Y., "Fermate" gave perfect control of black rot with no defoliation. Wine grapes sprayed with bordeaux lost most of their leaves.

In Schuyler County, N. Y., "Fermate" reduced black rot losses to less than 1%, untreated vines showed 21% black rot. At harvest, vines treated with other fungicides also showed considerable black rot damage.

In Dutchess County, N. Y., a grower had lost his entire crop to black rot several years running. One year of spraying with "Fermate" gave him such good control of rot, and such healthy vines, that he harvested the best crop in the history of the vineyard.

In 7 out of 8 N. Y. State field tests over a four-year period, "Fermate" gave top control of black rot. Residue on harvested grapes was also far less noticeable than with other fungicides.

IN OHIO—"Fermate" sprays cut black rot to less than 1%, whereas other materials allowed 3% to 14% damage.

IN MISSOURI—Results with "Fermate" were outstanding in years when other fungicides reduced yields, cut size of fruit, and caused uneven ripening in the cluster, as well as late ripening of the crop.

IN ARKANSAS—Growers report that "Fermate" greatly improved foliage growth in one season's application . . . For two years, loss from black rot ran from 10% to 30% on well-cared-for vines, and up to 100% on neglected vineyards. Growers who turned to "Fermate" cut black rot damage to 2%.

IN A FIVE-STATE TEST—"Fermate" proved to be the best black rot control of 11 fungicides tested in Missouri, Florida, New Hampshire, Ohio and New York.

Use "Fermate" for Other Fruits. You get the same combination of excellent disease control and improved fruit and plant growth by using "Fermate" on apples, pears, peaches, cherries, raspberries, etc. It is the outstanding effective and safe fungicide for scab, rust, and bitter rot of apples and pears, for brown rot of stone fruits, cherry leaf spot and raspberry anthracnose.

If you haven't used "Fermate," ask your dealer for it now. Ask him also for the free booklet on "Fermate." Or write to Du Pont, Grasselli Chemicals Department, Wilmington 98, Delaware.

DU PONT CHEMICALS FOR THE FARM INCLUDE:

Fungicides: PARZATE® (Liquid and Dry), FERMATE®, ZERLATE®, Copper-A (Fixed Copper), SULFORON® and SULFORON®-X Wettable Sulfurs—Insecticides: DEENATE® DDT, MARLATE® (Methoxychlor), LEXONE® (Benzene Hexa-chloride), KRENITE® Dinitro Spray—Weed Killers: AMMATE®, 2,4-D, TCA and Dinitro Weed Killers—Du Pont 2,4-ST Brush Killers—Also: Du Pont Cotton Dusts, Du Pont Spreader Sticker, PARMONE® Fruit Drop Inhibitor and many others. ®REG. U. S. PAT. OFF.

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

PROCESSING

(*Continued from page* 38)

canned, 1.5 per cent frozen, and 64 per cent brined.

Of the large red cherry crop produced in the U. S. in 1948, 87 per cent was processed. Of this amount 57 per cent was canned, 40 per cent frozen, and 3 per cent brined.

CHERRIES	Canned	Brined	Frozen	Other
		Tons		
1935	64,167	11,506	11,948	1,050
1940	71,651	15,670	20,150	4,893
1945	46,910	24,110	15,900	1,180
1948	82,700	33,260	47,000	520

APRICOTS

The three States producing apricots —California, Washington, and Utah —for the three-year average, 1946-48, processed 80 per cent of their production. Canning made up 60 per cent of the processed 1948 total, dried 39 per cent, and frozen 1 per cent.

APRICOTS	Canned	Dried	Frozen	Other
		Tons		
1935	59,391	142,000	.....	246
1940	38,920	58,300	.....	300
1945	67,450	42,900	32,670	340
1948	104,210	68,200	1,290	90

PEACHES

While total figures for peaches indicate that approximately an average of 40 per cent of the crop for the three years, 1946-48, was processed, practically all of this method of utilization took place in California. For example, 95 per cent of the peaches canned in 1948 were of the California crop. The major States which made up the remaining 5 per cent were Washington, Oregon, Georgia, South Carolina, Michigan, and Pennsylvania.

PEACHES —	Canned	Dried	Frozen	Other
		Thousand bushels		
1935	10,977	5,701	.....	64
1940	13,839	6,830	.....	107
1945	19,350	6,267	2,346	202
1948	23,708	2,208	400	33

PEARS

The percentage of pears processed in the three-year period, 1946-48, was 40 per cent.

Pear processing consists primarily of canning, with California leading the next highest pear producing State —Washington—in the canning of pears by more than 40 per cent in 1948.

PEARS —	Canned	Dried	Frozen	Other
		Thousand Bushels		
1935	5,548	1,400	.....	12
1940	8,559	712	.....	2
1945	9,539	1,239	.....	335
1948	11,534	221	.....	249

APPLES

In 1948 only 22 per cent of the apple crop was processed. Of the total amount processed 40 per cent was canned, 13 per cent dried, about 5 per cent frozen, and 42 per cent went into juice, vinegar, etc. Greatest canning activity in apples in 1948 was in New York, Pennsylvania, Virginia, West Virginia, and California. A small amount of New York's production was dried, while California and

(*Continued on page* 42)

The Aqua-Jet is an entirely new type nozzle. Its impinging jets generate a fan-shaped solid plume rather than a hollow-cone pattern. The impact of the two streams produces a very fine particle size . . . but, what is most important, any variation in the impinging angle varies the width and length of the plume without changing the discharge volume or particle size!

Adjustable "SPEED SPRAYER" Patterns

Aqua-Jet Boom type Nozzles are generally used two or three on each side. Each being adjusted and directed to build a most effective pattern to exactly suit the type of trees being sprayed. Single sided, extra high booms (like shown above) can be used with remarkable savings in tall tree orchards.

8 DIFFERENT JET TIPS ARE AVAILABLE

When ordering be sure to give capacity and pressure of your pump. Aqua-Jet matched tips vary from ¼ to 26 g.p.m. (300 p.s.i.) and must be properly ordered for best spraying results. Pressures below 250 p.s.i. are not recommended. Extra tips $1.00 per pair—any capacity.

Special HURST Booms

Aqua-Jet equipped SPEED Booms can be furnished for your specific needs. Easily attached to your present rig, converting it to a labor-time-material saver. For quotations give full particulars about your present sprayer, also tree height and spacing.

Originally designed during World War II for fighting stubborn fires. With proper pump output it is more effective than ordinary fire nozzles.

STREAM or FOG

Spraying 40-foot walnut trees proves the versatility of the Aqua-Jet "Tommy-Gun" Type. Instant pattern change reaches everywhere—wetting thoroughly and fast.

Hurst AQUA-JET Nozzles (patented)

Immediate Delivery

"Tommy-Gun" Type $39.75 (each)

Boom Type HEADS $12.75 (each)

Prices F.O.B. San Jose, Calif.

NOW is the time to ORDER!

HURST INDUSTRIES, INC. San Jose, California

Please ship immediately Aqua-Jet equipment listed below. Capacity of my sprayer pump is _____ g.p.m. at pressure of _____ p.s.i.

Money Order Attached . . . ☐ $_____

Ship C.O.D. . . . . ☐ $_____

Name _____

City & R.F.D. Box _____

State _____

_____ "Tommy-Gun" Type Nozzles @ $39.75 each $_____

_____ Boom Type HEADS @ $12.75 each $_____

NOTE: Unless otherwise specified shipments will be made "collect charges" via Parcel Post.

HU-64

HURST INDUSTRIES INC • SAN JOSE • CALIFORNIA • hi

HURST Sprayers

makers of the famous ROBIN Hi-pressure Sprayers.

Hurst Sprayers for every purpose • Campbell-Budlong Turbine Pumps.

Magnetic "70" is still the cream of the sulphur pastes. It does everything . . . better!

IT POURS—You can add this free-flowing, creamy sulphur paste direct to the spray tank by washing through screen.

IT STICKS—Make your own test by spraying "Mag-70" on a clean glass surface and after drying, try to rinse it off.

IT PROTECTS—"Mag-70" is our finest sulphur. It is specially designed for use in the pre-bloom and calyx sprays on apple and for the blossom and early cover sprays on cherry and peach.

OTHER STAUFFER CHEMICAL PRODUCTS

Magnetic "95" Spraying Sulphur
A micro-fine (not more than 5 microns surface average diameter) dry-wettable sulphur designed particularly for use in early cover sprays on apple, peach and cherry. It excels either as a spray or as a dust.

Magnetic "90" Dusting Sulphur
A micro-fine dusting sulphur recommended for use on wet foliage and in the rain.

DDT
Stauffer DDT 50% Wettable & Dust Concentrates

Parathion
Stauffer Parathion Wettable & Dust Concentrates

Lindane
The Gamma Isomer of BHC. For use in place of BHC where odor is objectionable.

BHC
13% Gamma BHC Wettable Concentrate

Stauffer CHEMICAL COMPANY

420 Lexington Avenue . . . . . New York 17, N. Y.
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636 California Street . . . . . San Francisco 8, Cal.

APOPKA, FLA. • N. PORTLAND, ORE. • HOUSTON 2, TEXAS • WESLACO, TEXAS

PROCESSING

(*Continued from page* 41)

Washington handled more than 90 per cent of the total U. S. dried apple crop.

The comparatively small amount of apples frozen in the U. S. (5 per cent) was processed mostly in New York, Pennsylvania, Michigan, Washington, and California.

The major portion of the apple tonnage crushed for vinegar, cider, and juice, was from the New York, California, Virginia, Michigan, Pennsylvania, West Virginia, and Washington crops.

APPLES—	Canned	Dried	Frozen	Other
	Thousand bushels			
1935	7,732	9,146	.....	14,176
1940	6,571	4,268	.....	11,104
1945	3,859	4,684	2,439	5,502
1948	7,796	2,564	913	9,050

GRAPES

For the three-year average 1946-48, 80 per cent of the U. S. grape tonnage was processed. During 1948 the total amount processed was 81 per cent, with grapes for canning making up one per cent of the amount processed, dried 37 per cent, and crushed for wine, juice, etc., 62 per cent.

About 80 per cent of the grapes grown in California in 1948 were processed with 60 per cent crushed for wine, juice, etc., 39 per cent dried, and one per cent canned.

About 48 per cent of the total grape tonnage processed in New York was crushed for juice in the Lake Erie area while other areas of the State accounted for approximately 42 per cent of the grapes crushed for wine, etc.

GRAPES	Canned	Dried	Frozen	Crushed
		Tons		
1935	2,400	816,000	.....	939,864
1940	11,300	688,600	.....	1,094,180
1945	11,000	969,200	.....	1,237,350
1948	10,000	894,200	.....	1,514,820

PLUMS & PRUNES

Only a small percentage of the plum crop is processed. In 1948, of the 3 per cent that went to the processors most of it was canned.

Prunes are dried and canned. Practically all of California's 1948 production was dried, most of Oregon's processed prunes were canned (Oregon processed 30 per cent of its harvested crop), while but a small percentage of Idaho's production was canned.

PLUMS	Canned	Dried	Frozen	Crushed
		Tons		
1935	2,475	.....	.....	.....
1940	1,200	.....	.....	.....
1945	2,150	.....	1,000	3,100
1948	1,835	.....	45	15

PRUNES	Canned	Dried	Frozen	Other
		Tons		
1935	26,200	464,200	.....	100
1940	18,800	788,150	.....	300
1945	26,700	589,250	10,050	3,700
1948	14,350	441,680	950	150

BETTER FRUIT AT LESS COST with John BEAN Automatic Spraying

Grower Saves $2,000 in Spraying Costs with Season's Use of Speed Sprayer

A. J. Schaefer and Sons, Sparta, Michigan, report savings of more than $2,000 on their 1949 spraying costs in the first season they used a Model 36 Speed Sprayer. John Bean Automatic Spraying not only cut labor costs, but also saved approximately ¼ on spray materials in the production of a premium-quality crop of 42,000 bushels of apples. In addition to savings on spraying costs, a serious two-spotted mite infestation, inherited from the previous season, was subdued and kept under control by Speed Sprayer's fast, thorough coverage.

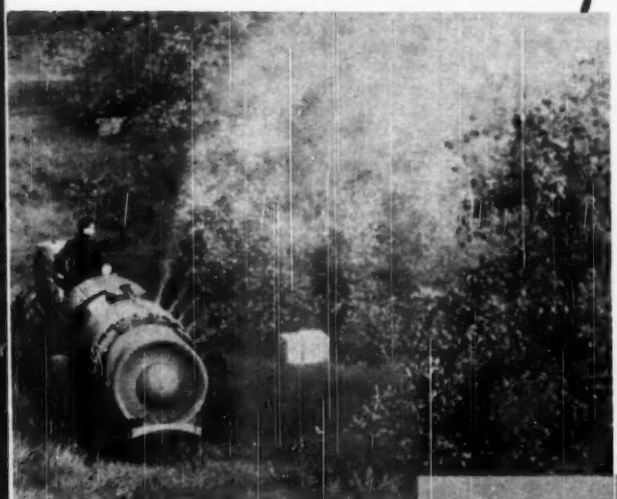
Reduced spraying costs from savings in labor and materials and *better quality fruit* because coverage is faster and more complete and spraying is on time are some of the advantages of John Bean Automatic Spraying as reported by growers throughout the Nation. Speed Sprayers and John Bean Royal High-Pressure Sprayers equipped with automatic Low-Boy or Automasts will make orchard history in 1950 as they did in 1949.

Arnold Schaefer of A. J. Schaefer and Sons, Sparta, Michigan, inspects the 1950 Model Speed Sprayer at the Michigan Horticultural Show. After one year's experience with a Speed Sprayer, Mr. Schaefer is convinced that John Bean automatic spraying helps produce better fruit at less cost.

"BE THRIFTY IN '50 with John Bean Automatic Spraying"

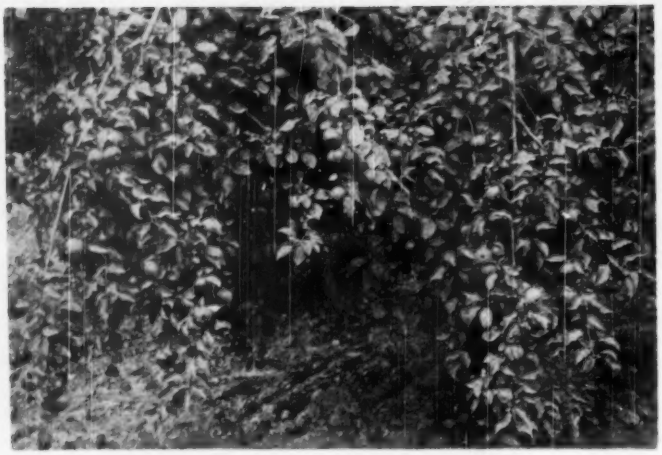
NEW John BEAN SPRAYER
DESIGNED FOR AUTOMATIC SPRAYING

The many advantages of John Bean Automatic Spraying are now within reach of more growers with the introduction of Model 58TT — the sprayer that's built for automatic spraying. Pull it with your present tractor because it's engine-powered and designed for easy hauling. Save spraying costs and get better protection with the automatic Low-Boy Automast. Dependable, Royal 35 pump has the capacity you need for economical automatic spraying. See the new Model 58TT at your John Bean dealer, soon!



Be thrifty in '50 with John Bean automatic spraying. Better fruit at lower cost is only one of the advantages of automatic spraying. Many growers say they couldn't afford to operate without it. Other growers like the way John Bean method solves their labor headaches. One man, perhaps the grower himself, does the work that three or more men used to do. Investigate for yourself. See your John Bean dealer or write for big new 1950 Orchard Catalog. It's free.

John BEAN fmc
Lansing, Michigan
San Jose, California
DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION



A fine CROP of apples... but it DIDN'T pay

Why? Because nobody wanted *King Davids.* Not only this variety but *Wolf River, Arkansas Black, Maiden Blush,* and many others failed to bring a price in 1949. Not because they were poorly grown, but because there were too many good crops of *Jonathan, Delicious, MacIntosh, Winesap* and other varieties with greater market preference.

And there are other factors which can make it difficult for producers to show a profit... even though best orchard-management practices are followed:

Low-yielding varieties
Old orchards long past their prime
Frosty orchard sites
Wet or non-productive soils
Crowded plantings

Apparently, the solution is to remove unprofitable trees and replace them with young, vigorous, high-yielding trees of popular varieties. Set plantings only on the best available sites, where drainage, elevation, and soil conditions are best suited to fruit production. Removal of bearing orchard is a hard decision to make. It calls for careful planning and expert advice.

Your Niagara field representative is fully capable of giving you sound advice on orchard planning as well as the many phases of profitable fruit production. While primarily a specialist on insect and disease control, your Niagara field representative has gained broad experience through constant contact with successful growers in your own area. Moreover, he receives a steady flow of up-to-date facts from the Niagara research staff, as well as federal and state experiment stations.

We invite you to call in your Niagara field representative right now. He'll be glad to visit your orchard at an early date. Or, write to us, and we'll ask him to call on you.

Niagara — Insist on Full Buy Protection

NIAGARA CHEMICAL DIVISION

FOOD MACHINERY AND CHEMICAL CORPORATION
Middleport, New York

Richmond, Calif. • Mt. Vernon, Wash. • New Orleans, La. • Greenville, Miss. Jacksonville, Fla. • Tampa, Fla. • Pompano, Fla. • Harlingen, Tex.
Canadian Associate: NIAGARA BRAND SPRAY CO., LTD., Burlington, Ontario

fmc

THE ORCHARD OF TOMORROW

(*Continued from page* 32)

The Bell orchard is located on typical Missouri River hill land. It has a true loess wind-deposited soil that is especially well adapted to the production of fruit with its deep well-drained subsoil which promotes rooting to a depth of 35 feet or more. The Orchard of Tomorrow site joins John's present bearing trees to the south. It faces southwest and had been moderately to severely eroded by the production of field crops. Soil tests indicated that both the surface and sub-soil were low in nitrogen and organic matter; low in phosphate, medium in calcium; with sufficient magnesium and potassium. Experiments show that loess soil deposits in this area contain about 70 acre inches of water available to apple trees, and that this reservoir is usually exhausted under general orchard practices in 12 to 18 years. Air and water drainage are ideal and frosts will seldom, if ever, be a serious problem on this site.

The 35-acre site required a real face-lifting operation to correct nutrient deficiencies, provide for soil and moisture conservation, and supply water for spraying. A complete system of terraces and waterways was planned and constructed. The waterways were built during the fall of 1948 and seeded to grasses and timothy. Two of these empty into the two-acre pond in the central part of the orchard and the third empties into an existing outlet stream.

On Orchard of Tomorrow Day, roads were surveyed and graded to provide easy access to all trees in the orchard. The road system gives excellent communication to the open end of every terrace, making it easy to get to each tree for orchard operations.

Terraces were planned and constructed in accordance with the recommendations of the Missouri College of Agriculture Extension Service. The spacing averages 70 to 80 feet so that, on the average, each terrace interval has two rows. Where the interval was increased to around 100 feet, a third row was added to avoid unoccupied land.

Fertilizers Added

After the terraces were completed, lime and fertilizers were added to bring the soil to high fertility and productivity. The soil treatment consisted of the application of two tons of lime and 1,000 pounds of ground rock phosphate per acre which will supply the trees' requirements for these two nutrients for 20 to 30 years. Nitro-

(*Continued on page* 46)

Farmer's "Workhorse"

Finer Than Ever For 1950

Famed in the farm field for years, new light-medium GMCs add to their renowned reputation with more power and comfort, more models and features, more real dollar-stretching value than ever before.

Newly designed camshafts, valves, carburetors and manifolds have increased the horsepower of all three engines in the line. Wider seats, more headroom, new sealing against dust and moisture, heat and cold, have increased the riding comfort of the cabs. New developments in brakes and springs . . . in various models . . . have increased chassis strength and stamina.

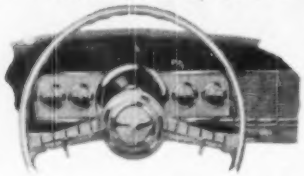
And new models, including the 1¼-ton "280" series particularly suited to tough farm jobs, have increased the versatility and adaptability of the line to cover every light and medium duty farm hauling job.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

GMC
GASOLINE • DIESEL
TRUCKS

BE A CHAMPION DRIVER

LET YOUR INSTRUMENTS MAKE YOU A BETTER DRIVER



Your instrument panel is a thing of beauty, but primarily it is a practical aid to better driving. Your instruments tell you all you need to know about the operating efficiency of your engine. Cultivate the habit of **checking them frequently.**

Oil pressure is vital, it registers the "blood pressure" of your engine. If too low, it indicates low oil level, oil too thin or oil pump inoperative. If pressure is too high, oil is stiff from cold or too heavy. In either case **it's a danger signal—heed it.**

There is no instrument in your car to check your spark plugs—but most Champion dealers have a Spark Plug Service Unit with *Sparking Comparator. Have yours tested and cleaned at regular intervals—it improves engine performance **and saves money**

A champion driver observes simple fundamentals, and maintains the life, pleasure, economy and performance of his car. Real experts like racing champions use dependable Champion Spark Plugs . . .

. . . BE A CHAMPION DRIVER—IT PAYS.

Johnny Parsons, 1949 AAA racing champion, says:
"I used Champions exclusively to win my championship."

FOLLOW THE EXPERTS—Demand

AMERICA'S FAVORITE
CHAMPION
SPARK PLUGS

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO

Listen to the CHAMPION ROLL CALL . . . Harry Wismer's fast sportscast every Friday night, over the ABC network

THE ORCHARD OF TOMORROW

(*Continued from page* 44)

gen will be added annually as needed, and minor elements will be utilized if deficiencies show up in the cover crops.

Following fertilizing and liming, a seedbed was prepared and planted to rye cover crop for the winter. Because of the steep grade, about five acres in the northwest corner with a 25 per cent slope were seeded to grass and will be handled in sod, with strip cultivation in the tree rows only. The remainder of the orchard will be cropped for six years, after which it will be seeded to grass for permanent sod. In the spring of 1950 the lower row of each terrace will be seeded to sweet clover; the upper tree row will be planted to fertilized corn, and the rows rotated in 1951.

35 Trees per Acre

After planting the cover crop, the tree rows were located and staked. Rows were placed on the terrace ridge except in the strip in the steep northwest corner where they were located on the back slope to place the terrace channel midway between the trees for convenience in spraying and harvesting. Trees were spaced so that each one occupies 1/35th of an acre, with a minimum row width of 28 feet and a maximum of 55 feet. Minimum tree distance within the row is 28 feet, while the maximum is 40. The end trees are 30 feet from the waterways and 30 feet from the roads at the open end of each terrace.

Tree holes were dug with a tractor-powered auger 18 inches in diameter. This machine not only rapidly dug a neat hole but also pulverized the soil, providing small soil particles which were well firmed about the roots of the trees.

Modified Leader Pruning

Trees were pruned to a modified leader with special emphasis on leaving a low branch on the southwest side of the trunk to prevent sunscald. Wood veneer tree protectors were used to prevent rabbit damage.

Varieties with high quality and good production potential under Missouri conditions were selected for planting. Both climate and market conditions were carefully considered. Forty per cept it will be the all-red Jonared Missouri's old standby, Jonathan, excent of the planting will consist of strain. John Bell has developed quite a reputation for the quality and pack

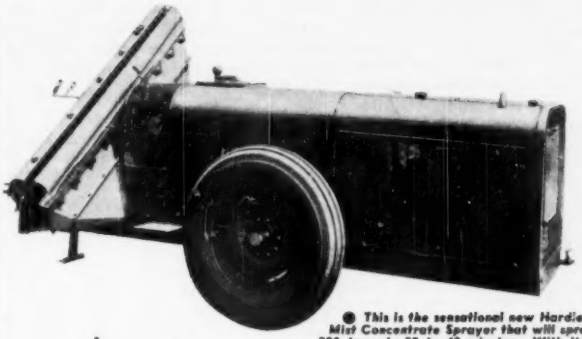
of his Starking Delicious, and 25 per cent of the planting will consist of that variety. He feels that the recent development of a crack-resisting Stayman, the Scarlet Staymared, has real possibilities and 15 per cent of the list calls for this variety. John has a special market for a limited production of Black Bens and these will occupy 10 per cent of the space. The Lady apple, a specialty of the Bell Orchards, will make up the balance of the planting. The varieties are located to provide ample cross pollination. Some will be top-worked on Virginia and Hibernal Crab stock for resistance to possible winter injury to crotches and trunks and to insure uniform trees.

Home Orchard Planted

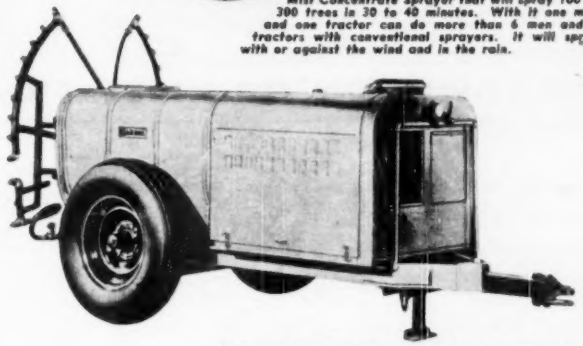
As a special feature of the Bell orchard development program, a home orchard adapted to the commercial grower of the Midwest, was planted on a favored location near the house. This planting contains berries, peaches, pears, plums, grapes, and cherries to give a continual succession of delicious tree-ripened fruit from late May until the fall apple harvest begins. Few markets, outside of the larger cities, offer quality fruit throughout the season. The advent of the quick freezer improves and simplifies the preserving of the fruits as they are harvested.

Completing the planting of the Orchard of Tomorrow, wasteland was utilized for new hardy papershell pecans and select Royal walnuts. The area below the pond dam is ideally suited to the production of nuts for home and commercial use.

Full co-operation between the Missouri College of Agriculture, soil conservation contractors, nurserymen, fertilizer companies, and Mr. and Mrs. John Bell made it possible to complete the whole project, with the exception of the waterways, in a single day. The planting incorporates all methods and present knowledge to provide for greatest profits. A wise selection of site, good soil management and improvement, combined with high yields of the best varieties at low cost are the master keys to profitable orchards of the future. Cost accounts show that a well-planned and well-managed orchard will pay as great or greater returns than any other type of agriculture. Fruit growing is a fascinating phase of specialized farming with a bright future. The Orchard of Tomorrow, as planned and planted on the Bell farm, sets a standard for better fruit farming in the future.



● This is the sensational new Hardie Orchard Mist Concentrate Sprayer that will spray 100 to 300 trees in 30 to 40 minutes. With it one man and one tractor can do more than 6 men and 2 tractors with conventional sprayers. It will spray with or against the wind and in the rain.



● Hardie Orchard Booms, single and double, readily attached to any Sprayer of adequate capacity enable one man to spray one or both sides and cover more trees than several men with hand guns.

5ways!

ONE DAY INSTEAD OF TWO
ONE MAN INSTEAD OF SIX
ONE TRACTOR INSTEAD OF TWO
ONE GALLON INSTEAD OF EIGHT
THREE LBS. INSTEAD OF FOUR

New and Better Ways to Spray Orchards, Groves

The most notable advancements ever made in the spray equipment industry are embodied today in the 1950 Hardie line.

The sensational Hardie Orchard Mist Concentrate Sprayer is provided with controls that enable the grower to spray successfully with or against the wind and in the rain. This amazing sprayer will apply both the new concentrates and the old standard insecticides and fungicides.

The Hardie Sprayrite and Multi-Nozzle Orchard Booms can be attached to any sprayer of adequate capacity, enabling one man to spray more acreage than several men with hand guns.

Write for the new 1950 Hardie Catalog describing these and many other new Hardie sprayers.

THE HARDIE MFG. COMPANY
HUDSON, MICH.

Los Angeles 11, Calif. **Portland 9, Oregon**
Export Dept., Detroit 26, Mich.
Canadian Office, Clarence W. Lewis & Son, Ltd., Grimsby, Ontario.

● *Engineers and manufacturers of sprayers since 1889. Many models for all purposes. High pressure sprayers delivering from 4 GMP at 300 PSI to 80 GMP at 1000 PSI. Write for the Hardie general catalog.*

NUTS

(*Continued from page 26*)

The production of both these States is mostly from wild or seedling pecans. Third was Georgia with 10,000 tons, the majority of which was from improved varieties. Fourth and fifth pecan producing States for 1949 were Alabama and Louisiana, both with about 7,000 tons. Most of Alabama's nuts are the improved varieties whereas most of Louisiana's pecans are the wild variety.

Nut Prices Decline

Highest prices during the war and post-war boom were paid for improved pecans which reached a high of 40 cents a pound, or $800 a ton, in 1946. Almonds ran a close second, reaching a price peak in 1944 of $744 a ton. In 1948 and 1949 nut prices declined, with the largest drop occurring with pecans.

Season Average Price Received by Grower

	Almonds	Filberts	Walnuts	Pecans Improved	Pecans Seedling
	Dollars per ton			Cents per pound	
1934	180	202	191	15.5	11.0
1935	280	263	203	12.4	5.0
1936	402	270	217	14.7	9.6
1937	275	217	181	10.9	5.8
1938	258	225	221	11.8	7.2
1939	209	226	168	12.2	7.8
1940	324	250	230	12.8	6.9
1941	704	306	252	12.8	6.5
1942	442	352	307	18.9	14.6
1943	732	499	478	28.5	19.0
1944	744	540	446	27.8	17.0
1945	720	551	509	29.1	20.0
1946	486	384	554	40.1	28.9
1947	558	252	381	29.5	18.4
1948	425	259	420	15.3	10.0

Imports Exceed Exports

Comparatively few nuts are exported from the U. S., as indicated by the totals in the following tables. Canada receives the largest amounts of all kinds of nuts.

Large amounts of shelled nuts are imported into the U. S. each year, with almonds being the leading import. Italy, Spain, and Turkey supply about 90 per cent of these nuts as shown below. Also included is a total for all countries by variety.

EXPORTS

	1946-47	1947-48	1948-49*
	Thousand pounds		
Almonds, sweet			
Japan	0	471	2
Canada	871	94	66
Venezuela	39	26	29
Total, all countries	1,103	736	206
Filberts			
Canada	88	312	8
Cuba	308	290	329
Brazil	0	89	0
Total, all countries	465	1,044	390
Pecans, shelled			
Canada	206	280	1,115
Total, all countries	243	314	1,148
Pecans, not shelled			
Canada	758	179	67
Total, all countries	995	222	96
Walnuts, shelled			
Canada	202	633	366
Total, all countries	262	718	478
Walnuts, unshelled			
Canada	2,859	1,522	468
Brazil	238	1,080	200
Cuba	431	507	588
Total, all countries	5,029	3,703	1,617

IMPORTS

	1946-47	1947-48	1948-49*
	Thousand pounds		
Almonds, shelled			
Italy	5,985	7,858	9,218
Spain	2,250	3,643	551
Total, all countries	8,928	11,840	10,304
Almonds, not shelled			
Italy	13	17	5
Total, all countries	404	19	6
Filberts, shelled			
Italy	380	35	130
Turkey	10,847	4,161	7,583
Total, all countries	10,487	4,202	7,772
Walnuts, shelled			
Turkey	448	324	1,082
Italy	264	207	948
China	14	39	1
Total, all countries	739	598	2,566

Large Foreign Nut Crop

Foreign production of nuts greatly exceeds that of the U. S. Leading in production are those countries tabled below, together with totals for each variety.

FOREIGN PRODUCTION

	1946*	1947*
	Thousand pounds	
Almonds (shelled)		
Italy	33,000	42,000
Spain	24,200	22,000
Iran	7,700	5,500
Total, all countries	71,700	72,600
Filberts (in shell)		
Turkey	90,000	58,400
Spain	18,200	33,000
Italy	47,800	9,900
Total, all countries	156,000	101,300
Walnuts, Persian (in shell)		
France	20,900	27,500
Italy	13,800	13,800
Hungary	3,200	3,300
Bulgaria	3,000	3,000
Total, all countries	52,000	51,800

THE LOWDOWN ON INSULATION

How to lick a phantom

You can't see water vapor. But you can't ignore it, either. If vapor ever gets into your cold room insulation, it multiplies your power costs, ices up, makes walls bulge and break, leads to costly repairs.

To lick vapor, you need two things. First, an insulation material that inherently resists moisture, such as Novoid Corkboard. Second, a material on which you can apply a lasting vapor seal.

To seal Novoid Corkboard, you simply dip each board in melted asphalt before putting it in place. No need for elaborate technique; nothing to puncture or tear.

Novoid Corkboard is American-made, under the strictest quality control. And it's installed by some of the most experienced, dependable men in the business. About the best way to keep refrigeration costs down, is to insulate with Novoid Corkboard and Novoid Cork Covering. If conflicting insulation claims confuse you, just write to us. We'll be glad to send you the "lowdown." Novoid Cork, Englewood, New Jersey.

CHECK LIST OF INSULATION PROPERTIES

	Novoid Cork Insulation	Many Other Insulations
First cost	moderate	low to high
Installation cost	low	moderate to expensive
Eventual cost	low	high
Efficiency	remains high	generally deteriorates
Moisture resistance	excellent	some good, some poor
Vapor seal	simple	complicated or difficult to install
Structural strength	very good	some non-existent, others fair
Weight	very light	varies
Resilience	considerable	from fair to complete rigidity
Settling	none	a serious problem
Supporting structure	none	elaborate
Fire resistance	good	excellent to poor
Vermin resistance	good	excellent to very bad
Odor absorption	none	some are regular sponges

Consider EVERY factor when you buy insulation—and you'll buy NOVOID

PLUMS AND PRUNES

(*Continued from page 24*)

dried prunes on a dried basis showed different trends in the various States, although all 1948 prices were considerably less than those of 1946.

Prices received for prunes for canning and freezing showed a marked decline in all States from 1946 to 1948.

PRUNES, FRESH	Season average price per ton received by grower		
	1946	1947	1948*
		Dollars	
Idaho	114.00	69.00	65.70
Oregon	104.00	104.00	85.40
Washington	128.00	119.00	72.50
PRUNES, DRIED FRESH BASIS			
Washington	72.30	60.00	35.00
Oregon	83.80	41.70	52.00
California	102.00	59.20	60.80
PRUNES, CANNING			
Washington	67.60	59.10	38.60
Oregon	65.80	59.50	39.20
PRUNES, FREEZING			
Washington	71.20	58.80	39.00
Oregon	65.80	58.20	38.50

Increased Exports of Dried Prunes

Total exports of dried prunes from the U.S. showed a considerable increase from 1946 to 1948. This was largely due to Germany which received 5,000 pounds in 1946-47 and 125,691,000 pounds in 1947-48.

Totals for all countries receiving U.S. plums and prunes and countries receiving the largest amounts of these exports are as follows:

PRUNES, DRIED	1946-47	1947-48	1948-49*
		Thousand pounds	
Germany	5	125,691	91,935
Japan	2	38,969	3,804
Austria	11	9,507	6,482
United Kingdom	62,147	7,339	45,063
Belgium and Luxembourg	13,279	7,330	7,949
Canada	24,481	6,822	13,489
Total, all countries	137,740	213,034	192,893
PLUMS & PRUNES—CANNED			
Belgium and Luxembourg	708	458	7
Venezuela	234	231	136
Canada	105	198	0
United Kingdom	3,091	14	0
Total, all countries	7,855	2,264	750

Foreign Production Increasing

Seventy-five per cent of the world's plums and prunes are produced in foreign countries with most of this production in Europe. Yugoslavia, which grows about one-half of the amount of plums and prunes grown in the U.S., has led in foreign production during the last three years. Countries producing the most plums and prunes are listed below together with the total for all foreign production.

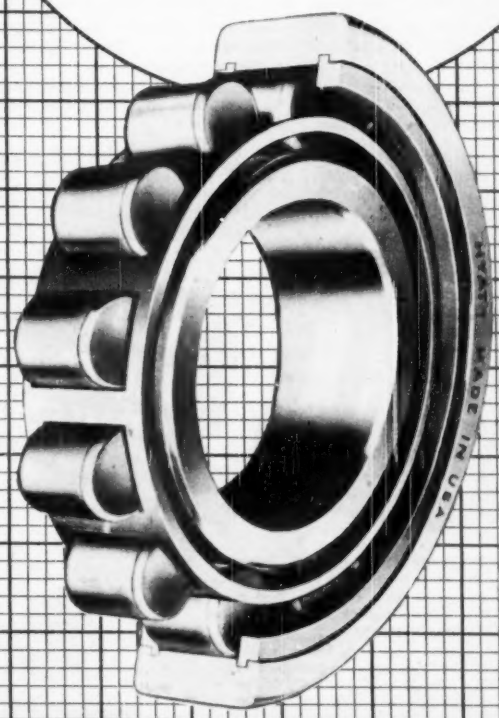
FOREIGN PRODUCTION	1947	1948	1949*
		Short tons	
Yugoslavia	316,468	271,216	300,000
Rumania	122,467	115,742	210,000
Germany	129,822	194,981	220,000
Czechoslovakia	162,866	199,436	200,000
United Kingdom	162,176	174,048	175,000
Bulgaria	130,000	120,000	150,000
Italy	72,451	68,165	78,374
Total, foreign	1,668,514	1,816,332	2,010,038

INSIDE INFORMATION

WHEN you buy a tractor, truck, spray pump or other orchard equipment, you want information on what's inside—particularly what grade of bearings protect gears, shafts and wheels.

Fortunate for you, many leading manufacturers design in Hyatt Roller Bearings at important positions to assure smoother operation—longer life and economy in fuel and lubricants.

When your dealer says "Hyatt Roller Bearings" you get top quality – proved in case after case for nearly fifty years. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.



HYATT ROLLER BEARINGS

That's why WISCONSIN HEAVY-DUTY *Air-Cooled* Engines POWER THE FINEST EQUIPMENT YOU CAN BUY!

You keep spraying and dusting schedules moving on time with equipment carrying such names as: John Bean, Buffalo Turbine, Evans Orchard Supply, A. B. Farquhar, Frost Insecticide, Hardie Mfg., F. E. Myers & Bro. Co.

All are sprayers and dusters powered by Wisconsin Heavy-Duty Air-Cooled Engines. All are built by manufacturers who know that *The Best Engines Make The Best Machines Better.*

Orchard equipment builders, along with hundreds of other manufacturers in almost every field in the 3 to 30 hp. range, rely on Wisconsin engines . . . first, because Wisconsins are built for year in and year out service . . . with "thrust-eliminating" Timken tapered roller bearings at both ends of the crankshaft . . . and a flywheel fan for trouble-free air-cooling at all seasons.

You are assured, too, of quickest starts and dependable ignition because of a "hot" magneto and impulse coupling, while a jet-and spray-oiling system eliminates grease and oil fittings . . . reduces maintenance.

Ask your orchard equipment dealer about Wisconsin-powered machinery and separate power units. Write us for information about all models . . . 4 cycle, single, two-, and four-cylinder types, 3 to 30 hp.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 14, WISCONSIN

KILL SCALE RED MITE APHIS etc.

THE safest and most thorough dormant spray for fruit trees, shade trees and ornamentals.

Scalecide controls scale, red mite, bud moth, case bearer, pear psylla, codling moth, also brown rot canker and peach leaf curl.

1 gallon makes 16 gallons. Spray with Scalecide just before the buds start. 5 gallons, $8.10; 1 gallon, $2.40; 1 quart, $1.00. Slightly higher west of Ohio, the Virginias and Carolinas.

Order today from your dealer

Send for free copy of booklet, "Spraying the Home Garden."

B. G. PRATT CO., 163 RIVER STREET, HACKENSACK, N. J.

There's a Pratt Spray for Every Need

D-X Insect Spray • Pratt's Fruit Tree Spray • Pratt's Vegetable Dust or Spray • Para-Scalecide

BERRIES

(Continued from page 27)

With 2,932 acres, Oregon led the list of States with the most acreage in Boysen-, Young-, and Loganberries, according to the 1945 Census.

Leading blackberry and dewberry State is Texas with 4,800 acres, followed by Oklahoma with 3,300 acres and Arkansas with 2,500 acres.

Value of Crop

On the basis of total value of the crop, berries ranked in the order as shown in the table below:

TOTAL VALUE OF CROP—1944—millions

Strawberries	35
Raspberries	11
Cranberries	9
Blackberries & Dewberries	4
Blueberries	.3
Boysenberries	.4
Loganberries	.3

STRAWBERRIES—Season average price per crate received by grower

1939	2.44	1942	3.18	1945	8.61
1940	2.45	1943	6.33	1946	9.77
1941	2.48	1944	7.93	1947	7.55
				1948	8.07

PROCESSING—1948*—Season average price per pound received by grower

Louisiana	.232
Oregon	.200
Washington	.202

CRANBERRIES—Season average price per barrel received by grower

1936-45 average	14.20	1946	31.90
1944	24.60	1947	17.10
1945	20.90	1948*	10.10

BLACKBERRIES AND DEWBERRIES—Season average price per quart to New Jersey growers

1946	.31	1947	.22	1948	.30

RASPBERRIES

1946	.62	1947	.43	1948	.43

$500,000 For Cranberry Advertising

Most progressive in advertising and promoting their crop are the cranberry growers who have two industry-wide co-operatives, one for processed cranberries and one for fresh. The American Cranberry Exchange handles fresh cranberries under the famous "Eatmor" brand.

Founded in 1911, the exchange is a non-profit co-operative marketing membership corporation which conducts an annual advertising and publicity program to stimulate the sales of the fresh berries.

The exchange collects funds for cranberry promotion from the members on the basis of an assessment of a certain amount per barrel. Each year the needs of the season are studied and an advertising budget agreed upon. For the 1949-50 season the assessment was placed at a rate not to exceed $1 a barrel and the exchange will spend approximately $500,000.

GRAPES

(*Continued from page 25*)

High Prices for Muscadines

Season average price for grapes has varied from a low of $13.40 a ton in 1932 to a high of $93.80 a ton in 1946. Although California's average price rose faster during the war, it has dropped faster than grape prices in other areas in the post-war period.

Highest season average price for 1948 was recorded by Arizona with $345 a ton. Muscadine growers in South Carolina and Georgia were next with $180 a ton. California registered the lowest season average price for 1948 of $35.60.

FRESH Season average price per ton received by grower

1934	19.80	1942	35.60
1935	14.90	1943	62.20
1936	21.40	1944	78.80
1937	20.40	1945	59.30
1938	14.50	1946	93.80
1939	15.90	1947	40.20
1940	17.20	1948	39.50
1941	24.10		

PROCESSED	1946	1947	1948*
New York Concords	150.00	100.00	100.00
New Jersey—All	110.00	94.00	75.00
Pennsylvania Concords	140.00	102.00	100.00
Michigan—All	139.00	83.00	99.00
Washington—All	81.60	65.30	40.70
California			
Canned	75.00	57.00	48.50
Dried***	312.00	132.00	134.00
Crushed	90.70	29.80	30.30
All Fresh	109.00	50.90	52.10
Total	90.50	36.00	35.60

***Dried basis (4 tons fresh to 1 ton dried)

Exports and Imports

Exports of fresh grapes were increased by more than 20,000 tons from 1946 to 1948. Exports of raisins and currants were four times as great in 1947-1948 as they were in 1946-47. Leading importer of raisins and currants from the U.S. in 1947-48 was Germany, with a total of about 153 million pounds. Canned grape exports amounted to 3,000 pounds in 1946-47 and 341,000 pounds in 1947-48.

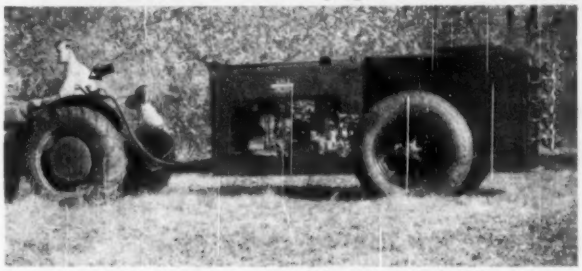
The U.S. imported few grapes between 1946 and 1948. Hothouse grapes amounted to 2,000 cubic feet in 1946-47 and 3,000 cubic feet in 1947-48. Import totals for other grapes are given in the table below.

In the following tables are listed those countries receiving the greatest amount of exports of grapes from the U.S. Also included are leading countries from which the U.S. receives imports.

FRESH—Exports	1946-47	1947-48	1948-49*
	Thousand pounds		
Canada	51,276	47,690	49,467
Mexico	6,657	6,155	2,165
Cuba	2,517	4,280	4,493
Brazil	2,951	3,518	1,766
United Kingdom	2,600	0	7
Philippines	2,541	17,700	16,311
Total, all countries	72,182	94,353	74,719

GRAPES—Imports			
	Thousand cubic feet		
Canada	167	153	226
Chile	113	165	85
Argentina	260	48	62
Union of South Africa	37	29	68
Total, all countries	578	396	451

Before You Buy . . .
Look Into the HALE Centrifugal Orchard Sprayer



Above—Arrow points to convenient controls which operate the banks of 5 spray guns on each side, together or separately.

Because it represents a great improvement in the Spray Equipment Field, careful buyers are finding it well worth while investigating the HALE Centrifugal Orchard Sprayer pictured in action at right.

This Centrifugal Sprayer has been thoroughly tested and approved by leading growers. The action picture gives you some idea of the excellent coverage you can obtain from the unit. It will pump any desired capacity or pressure up to 100 U.S.G.P.M. at 600 lbs., with ample reserve.

Users who keep accurate comparative cost records find that the Hale Sprayer not only requires less time to operate but also greatly reduces the cost of spraying.

It will pay you to send today for Bulletin #302 on the Hale Centrifugal Orchard Sprayer. No obligation (Dealer Inquiries Invited).

HALE FIRE PUMP COMPANY, Conshohocken, Pa.

SPRAYING or DUSTING

These Trade Marks Assure Superior Results

TENNESSEE TRI-BASIC COPPER SULPHATE

COP-O-ZINK NEUTRAL COPPER ZINC

"MICROGEL"

NU-M NUTRITIONAL MANGANESE

NU-Z NUTRITIONAL ZINC

Ask for fungicides carrying the Tennessee Corporation's Trade Marks and rest assured that you are getting fungicides of superior quality. Whether you are dusting or spraying you'll find that these fungicides produce superior results.

Send postal card for free literature on fungicides to Tennessee Corporation, Grant Building, Atlanta, Georgia.

DEMAND that Tennessee's Tri-Basic Copper Sulphate be used when buying copper dust or spray mixtures.

ES-MIN-EL

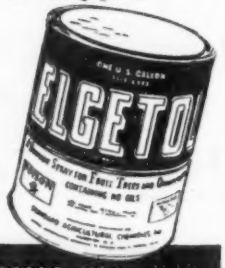
Contains the essential mineral elements of Copper, Iron, Manganese, Boron, Zinc and Magnesium—you should return these elements to your soil now!

FREE—Send a card for our booklet on ES-MIN-EL to Tennessee Corporation, Grant Bldg., Atlanta, Ga. or Lockland, Ohio.

TENNESSEE CORPORATION

DOUBLY SAFE DINITRO

ELGETOL is doubly safe! It is the original non-caustic, water soluble dinitro dormant spray and is easily applied. And it has proved to be safe on crops for the past 11 years. Use ELGETOL on apples, peaches, cherries, prunes, plums and almonds to control scab, leaf spot, aphis, crown gall, scale and bud moth. For supplemental control of red mite, use ELGETOL 318 . . . used successfully in many commercial applications last year.



STANDARD AGRICULTURAL CHEMICALS, INC.
HOBOKEN, NEW JERSEY SACRAMENTO, CALIFORNIA

Refrigeration Offers you dependable, automatic control of both temperature and humidity: keeps fruit and other foods better, longer. Get full details now: write, wire, phone, or visit

FRICK CO.
Also Builders of Power Farming and Sawmill Machinery

OTTAWA Buzz Master

No Other Like It!

7 MODELS—$99 up

Greatest offer ever made by oldest and largest firm in the business. Made by men with the know-how. A model to fit your needs and your pocketbook. Endorsed by Conservation experts. Send for FREE details. Now in our 46th year.

OTTAWA MFG. CO., 1-032 Brush Ave., Ottawa, Kansas

APPLE BOXES and FIELD CRATES
BOX SHOOKS, WIRE BOUND BOXES
MARINETTE & MENOMINEE BOX COMPANY
Marinette, Wis.

CHERRIES

(*Continued from page 20*)

sin's crop, which was less than half of 1948's record, and the New York crop which was one-fourth as large as that of 1948.

Production Doubled On Fewer Trees

With better cultural methods, growers are now producing twice as many cherries per tree as they did in 1910. Number of trees has decreased by five million while production has been increased by 56,000 tons. In 1910 there were 17 million trees from which were produced 110,500 tons, or 14 pounds per tree. Number of trees had decreased to 12 million in 1945 but production was upped to 172,000 tons, or 29 pounds per tree.

Cherries Plentiful In Europe

Total foreign production is more than three times as great as that of the United States. Most of this production is concentrated in the European countries which produce about 75 per cent of the world total. Tabled below are the leading foreign producers and a total for all foreign countries.

Country	1947	1948	1949*
		Short Tons	
Germany	129,681	110,865	120,000
Italy	113,707	86,398	105,523
Czechoslovakia	69,412	76,663	75,000
France	103,616	64,187	75,000
Yugoslavia	63,300	60,000	65,000
Poland	55,771	45,000	50,000
Switzerland	69,445	47,399	50,000
Canada	7,475	9,800	10,100
Total, foreign	783,958	704,128	747,956

Italy Is Leading Exporter to U.S.

Exports of canned cherries amounted to very little during 1946-47 and 1947-48. Below is a list of a few of the countries which received canned cherries from the U. S., plus the total for all countries.

Considerable amounts of processed cherries were imported into the U. S. from Italy between 1946 and 1948. The following table also lists other importing countries and a total for all countries.

CANNED—Exports

Country	1946-47	1947-48	1948-49*
		Thousand Pounds	
Canada	21	369	62
Venezuela	227	216	160
Philippines	70	94	190
Saudi Arabia	427	65	127
Total, all countries	2,726	1,135	950

NATURAL, SULPHURED, OR IN BRINE—Imports

Italy	4,383	10,180	3,806
Chile	67	95	84
Yugoslavia	63	78	22
Canada	1	139	92
Total, all countries	4,592	10,495	4,094

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WASHINGTON OUTLOOK

(*Continued from page 28*)

Plan aid as a continuing, never-ending subsidy, although ECA officials have said repeatedly they expect the program to taper off and be discontinued by 1952.

In the field of research, the Agricultural Research Administration soon will start a Citrus Consumer Reaction Survey with the view of learning how to help growers get citrus fruits to market in ways most pleasing to the housewife.

The ARA has underway the following projects, or shortly will get them underway, in conjunction with growers and State agencies:

A peach project to study the means of getting better quality and tree-ripened fruit to market.

A pear project to study best ways of ripening and packaging fruit for marketing and best methods for carloading.

An apple project in Wenatchee, Wash., to determine whether apples should be prepackaged at the shipping point or shipped in bulk to be prepackaged nearer point of ultimate sale.

Also, with the increased funds at its disposal, ARA is projecting other research programs that, before the end of 1950, should be most useful to fruit growers.

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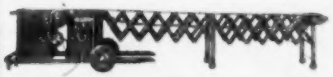

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STANDARD CONVEYOR COMPANY, North St. Paul 9, Minn.

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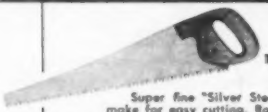

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FRUIT RESEARCH

(*Continued from page* 33)

Air purification in apple storages. By purifying the air in apple cold storages, A. Van Doren, Washington Agricultural Experiment Station, found that a month or more was added to the storage life of apples. With varieties like the strains of Delicious and Jonathan considerably more than a month was added. Air purification provided about the same degree of protection from scald as did oiled paper wraps.

At Cornell University, F. W. Southwick and R. M. Smock reported that air purification added from a month to two months to the storage life of apples tested. It was pointed out that air purification cannot be counted upon as a scald control measure in mixed variety rooms but, on the other hand, it gave more satisfactory results in the test than did shredded oiled paper.

Setting figs with growth regulating sprays. Julian C. Crane, University of California, and Rene Blondeau, Shell Oil Co., found that figs, which normally require cross-pollination, could be made to set fruit by application of sprays containing indolebutyric acid at concentrations of 1500 and 2670 ppm. Some curling of the foliage and chlorosis were caused by the sprays, but figs produced were equal to or better than those on the check trees.

Plant breeders are developing varieties with better nutritional qualities. At the Mississippi Experiment Station, J. P. Overcash and Laverne McWhirter found that nine strawberry varieties showed pronounced differences in vitamin C content as follows: Fairmore, Suwannee, Tennessee Shipper, Klonmore, Klondike, Tennessee Beauty, Massey, Blakemore, and Missionary.

Fighting winter injury on red raspberries. At the University of Massachusetts, John S. Bailey found that the duration of rest period with raspberry varieties is correlated to winter injury resistance. Experiments showed that the rest period of red raspberries in a normal season is short, ending in early December, and that hardy varieties such as Chief and Latham enter a deeper rest and come out more slowly than tender varieties like Marcy and Washington.

Maleic hydrazide to delay fruit blossoming. The use of maleic hydrazide has delayed the blossoming of raspberries as much as 30 days without apparently affecting the plant or the quality of the fruit, ac-

cording to David G. White and William C. Kennard of Pennsylvania State College. This new material will be widely explored next year.

Injecting magnesium into Muscadine grapevines. W. L. Lott, North Carolina Agricultural Experiment Station, injected magnesium sulfate in solution into the stalks of the vines of Janes and Scuppernong and found that late summer chlorosis, a common and accepted difficulty, was avoided. Applications of magnesium sulfate to the soil gave no visible results during the first season of treatment.

Mulching for potassium deficiency in peaches. At Purdue University, Clarence E. Baker found that mulching with manure, straw, and soybean hay eliminated symptoms of potassium deficiency in a peach orchard. Check trees, which received no mulch, did not recover.

Boron deficiency in Michigan apples. Typical symptoms of "apple measles," or boron deficiency, were found on apple trees growing in 21 orchards in southwestern Michigan on light sandy soils. As reported by Oscar J. Dowd, Soil Conservation Service, applications of borax to the soil overcame the deficiency symptoms. Light applications of borax were believed to be needed in many apple orchards that are making unsatisfactory growth on the light sandy soils of southwestern Michigan.

Foliage sprays of nitrogen on peach trees. Urea for peach foliage fertilization was not effective in tests at Fort Valley, Ga., and Beltsville, Md., according to J. H. Weinberger, Victor E. Prince, and Leon Havis, all USDA. If any of the nitrogen was utilized in the peach leaves, it was in such small quantities that it did not show significant effects.

Spring or fall fertilization of peaches. In Georgia, spring applications of nitrogen were more effective in increasing yield and growth of Elberta peaches than fall or after-harvest applications, but they also delayed maturity of fruit the most. After-harvest applications stimulated tree growth with a minimum effect in retarding maturity of fruit, according to John Weinberger, USDA.

Boric acid sprays for fruit set. Work by L. P. Batjer and A. H. Thompson, USDA, shows that in 1948 in two Anjou pear orchards near Wenatchee, Wash., application of boric acid sprays on an experimental basis increased fruit set. It is sug-

(*Continued on page 56*)

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TEXAS
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WEST VIRGINIA
Huntington
Wheeling

FRUIT RESEARCH

(*Continued from page* 55)

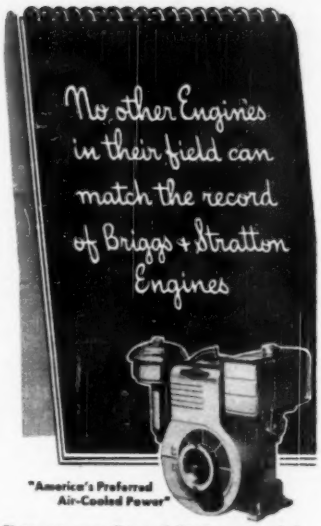
gested that this may be due to three possibilities: 1) stimulation of pollen germination and pollen tube growth; 2) stimulatory effect of boron on formation of plant auxims during and following bloom period; and 3) correction of an incipient or temporary deficiency of boron.

Delayed chemical thinning of apples. From the standpoint of obtaining maximum benefits in fruit size, early thinning is desirable. However, a calyx application of blossom thinning sprays may not be any more desirable than a blossom application in seasons when conditions are unfavorable for fruit set because it may not be possible to determine accurately whether a thinning problem exists at that time. With this in mind, F. W. Southwick and W. D. Weeks of the Massachusetts Agricultural Experiment Station found that the sodium salt of naphthalene acetic acid offers considerable promise as a post-blossom thinning material for apples. It was found that applications up to four weeks from petal fall increased the drop of fruit over check trees.

A new chemical for preventing apple drop. Work with a new growth regulating compound, 2-methyl 4-chlorophenoxyacetic acid, revealed that it holds promise in controlling the pre-harvest apple drop of Oldenburg, McIntosh, and Northern Spy apples. A. E. Mitchell, C. L. Hamner, and Walter Toenjes, Michigan State College, report that in on season's tests the new material gave better results on the three varieties than did naphthalene acetic acid.

Ultraviolet light treatment for fruits in transit. D. H. Dewey and W. T. Pentzer, USDA, tried treating California peaches, nectarines, and plums in the packing house with ultraviolet light to prevent decay of fruit while being shipped to distant markets. Ultraviolet irradiation did not prove to be a reliable or commercially feasible way of preventing decay.

Effect of new spray materials on foliage. Experiments by Almon S. Fish, Jr., and William F. Pickett, Kansas State College, working with apples, and Erik M. Johnson and A. L. Kenworthy, Michigan State College, working with cherries, showed that some of the newer organic spray materials definitely increase the palisade layer and chlorophyll content of cherry and apple leaves. Fermate



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has been particularly effective. The results show why Fermate has been such a good spray in the orchards.

Theory on why naphthaleneacetic acid blossom thins apples. Miss B. E. Struckmeyer and R. H. Roberts, University of Wisconsin, suggest that naphthaleneacetic acid thins apples in the spring because it sets apples heavily, and then in the resultant competition for nutrients there is a natural thinning by the tree itself.

Thinning peaches with hormone sprays. Using high concentrations of hormone sprays and making the applications late in the season give very good results with thinning peaches. This is a very promising lead worked out by A. D. Hibbard and A. E. Murneek of the University of Missouri.

Controlling chickweed in strawberries with I.P.C. At the Michigan Agricultural Experiment Station, R. F. Carlson and A. E. Moulton have shown that chickweed can be controlled in strawberry plantings by applications with I.P.C. in the fall of the year. Also, they have shown that strawberry land may be sprayed with 2,4-D before strawberry plants are set to kill weeds and weed seeds. Then, strawberry plants can be set without injury if their roots are dipped in activated charcoal before planting.

Stimulating the healing of tree wounds. Edwin A. Davis, Yale University, used four growth regulating compounds to stimulate the wound healing of the sugar maple. The compound cysteine hydrochloride offered promising evidence that it is able to hasten the healing of tree wounds.

Speeding the ripening of peaches. P. C. Marth, Leon Havis, and V. E. Prince, USDA, have shown that growth regulators will ripen peaches on the tree earlier than normal but that the fruits will be small and of poor quality.

Olive oil for ripening figs. From California, James Clements and W. T. Pentzer, USDA, showed that the old practice in the Mediterranean countries, of using olive oil on the ends of figs to cause them to ripen, is not just a superstition but actually does work. What the unknown agent is in olive oil remains to be determined.

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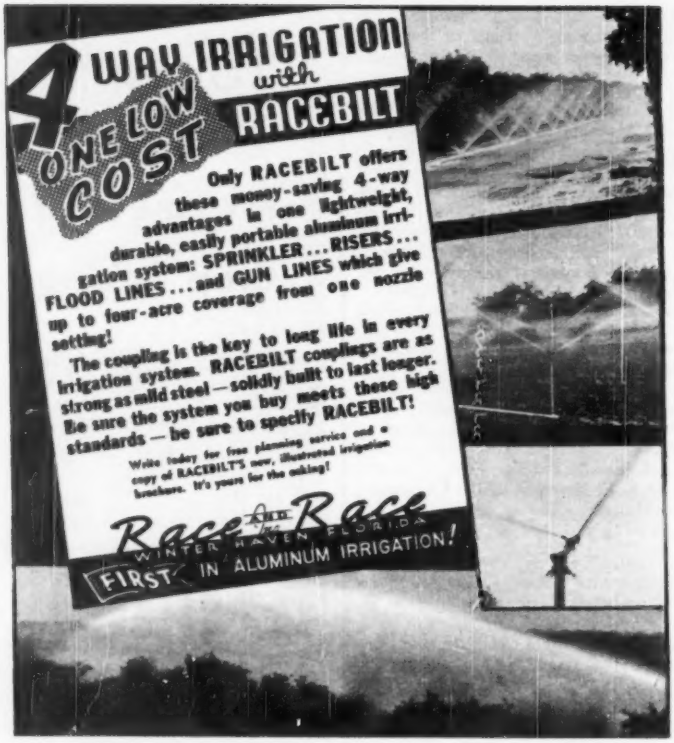
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From where I sit ... *by* Joe Marsh

Now Hospitals Are "Banks," Too!

Doc Simpson was saying, "Hospitals are building up 'bone banks' that work just like blood banks. When bone is needed, the surgeon takes one from a refrigerator, cuts it to the right shape and simply splices it in."

"You doctors are sure making progress," I says, "but tell me, are any of the patients fussy about *whose* bone they're getting?"

"No sir!" replies Doc. "No more than they worry about whose blood they get. No one yet asked for a bone from a man who went to the same school or church he did."

From where I sit, it would be a much better world if we were half as willing to accept other people's ideas and tastes, as we seem to be willing to accept their bone and blood. There'll always be differences between us. Some like buttermilk, others would rather have a sparkling glass of temperate beer. But underneath we're pretty much the same — deserving each other's respect and tolerance!

Joe Marsh

Copyright, 1949, United States Brewers Foundation

THE NEW GIANT FRUITS

(*Continued from page* 30)

"giant" fruits is only one part of the use of this technique in breeding. Thus, if one fruit variety has four sets of chromosomes and another only two sets, as in the blueberry or cranberry it may be impossible to cross them; but, if the one with two sets can have its chromosome number doubled, it can then be crossed with that having four sets. For the apple, however, varieties with four sets are wanted, for they do cross with those with two sets to give triploid varieties like the Stayman, Baldwin, and Greening.

Other developments in polyploid breeding include a tetraploid blueberry which virtually has been made to order and will be important in breeding work. A tetraploid thornless blackberry is now available for producing hardy new thornless ones. The new nine-ploid Cascade blackberry, reported to be the finest in flavor of all known varieties, is now being grown in the Pacific Northwest. There are hundreds of new Logan-type berries derived from crosses of the octaploid native western blackberry with tetraploid red raspberries. The hardiness of a more northern tetraploid cranberry has been combined with the horticulturally better diploid varieties on the triploid level.

Tetraploid and hexaploid blueberries are larger berries than the diploids. Samples of the tetraploids of both Portland and Fredonia grape varieties yielded berries almost exactly twice the weight of corresponding diploids. Better adaption to their environment is shown by the vigor of polyploid plants. Octaploid strawberries show greater drought and heat resistance, better utilization of soil fertility, or deeper root systems than diploid forms. Breeding polyploid fruits produces flavors never procured before.

Work with polyploid breeding has disclosed but a few of the effects it will have on fruit culture, but great possibilities are indicated. As Dr. Darrow says, "There seems to be no unsurmountable barrier in the use of this material. The tools are now available to fashion this material so the breeder can build exactly as he wishes. The only limits are his blueprints, his time, and his industry."

NEW FRUIT VARIETIES

By REID M. BROOKS
and H. P. OLMO
University of California

THE "Register of New Fruit and Nut Varieties," compiled at the University of California, Davis, with the co-operation of 62 of the leading horticulturists in the United States and Canada, is cataloging all new varieties of fruits and nuts that have appeared since 1920. Beginning in 1944, the "Register of New Fruit and Nut Varieties" has published four lists in the Proceedings of the American Society for Horticultural Science.

Thus far, 747 varieties among 49 species have been listed and published. Of these, peaches lead with 151 varieties; apples are second with 91; then strawberries with 89; and grapes with 75. Plums and raspberries are each represented with 44 new varieties.

A unique method of collecting the information is used in that postcard questionnaires are sent to the originators themselves asking for only a limited amount of data, including the place of origin, the name of the originator, patent number or copyright, parentage of the variety, and a few descriptive notes that establish the variety as distinctive from others. At the present time there is a considerable number of new varieties being released that should be called to the attention of the public to encourage wider testing and more rapid evaluation. Annual lists are now being published so that most varieties are reported as soon as they are named and released.

On these pages is printed a summary of new varieties appearing during the past two years which indicates the present scope of fruit breeding and the widespread interest in new varieties.

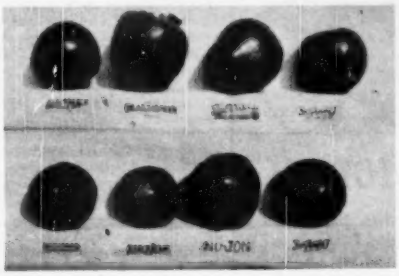
APPLE

Idajon.—Originated in Moscow, Idaho, by the University of Idaho (Leif Verner). Introduced commercially in June, 1949. Wagener x Jonathan; selected in 1936. Fruit: ripens 10 days before Jonathan; dessert quality good.

Oriole (Minnesota No. 714).—Originated in Excelsior, Minn., by the University of Minnesota Fruit Breeding Farm. Introduced commercially in March, 1949. Parentage unknown, selected in 1923 from seed planted in 1914. Fruit: very large; roundish; striped and splashed red over yellow-orange; flesh tender, fine grained, juicy, aromatic, sub-acid; quality excellent for cooking or dessert; an unusually good early summer variety.

(*Continued on page 60*)

A New Race of Red Apples!



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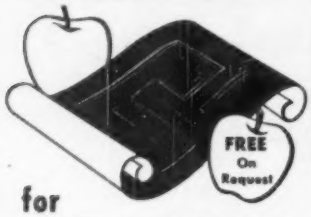

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NEW VARIETIES

(Continued from page 59)

Western Giant.—Originated in Paskenta, Calif., by Earl Davies. Introduced commercially in the fall, 1948. Patent pending; to be assigned to United Nurseries, Red Bluff, Calif. Parentage unknown; discovered in June, 1947. Fruit: skin thick with a deep blush flecked with red; flesh creamy white; 4½ to 5 inches in diameter; weight 12 to 14 ounces; ripens before Astrachan at the 4,000 foot level on the west side of the Sacramento Valley in Tehama County, around July 5 to 12; keeps well in cold storage; most nearly resembles Alexander.

Yakima Newtown.—Originated in Yakima, Wash., by Curtis C. Aller. Introduced commercially in 1949. Patent No. 819; January 11, 1949; assigned to May Nursery Company, Yakima, Wash. Bud mutation of Yellow Newtown. Fruit: more elongate, brighter green, more pronounced cavity and longer stem, more resistant to bitter pit and scald than parent variety. Tree: similar to parent but with long fruit spurs.

BLACKBERRY

Chehalem (Oregon 731).—Originated in Corvallis, Ore., by the U.S. Department of Agriculture and the Oregon Agricultural Experiment Station (George F. Waldo). Introduced commercially in 1948. Santiam x Himalaya; cross made in 1936; seedlings planted in 1937; selected in 1939. Fruit: bright black; excellent for frozen products; size smaller than Logan. Vine: probably limited range of adaptation; only vigorous and productive in moist and rich soils.

BLUEBERRY

Berkeley.—Originated in Weymouth, N.J., by the U.S. Department of Agriculture (F. V. Coville and George M. Darrow) and the New Jersey Agricultural Experiment Station (Franklin A. Gilbert). Introduced commercially September 20, 1949. Stanley x GS-149 (Jersey x Pioneer); selected in 1938. Fruit: light blue color; largest of any in the trade; berries not subject to cracking; ripens about a week after Stanley and a week before Jersey. Bush: productive; easy to propagate.

Coville.—Originated in Weymouth, N.J., by the U.S. Department of Agriculture (F. V. Coville and George M. Darrow) and the New Jersey Agricultural Experiment Station (Franklin A. Gilbert). Introduced commercially September 20, 1949. GM-37 (Jersey x Pioneer) x Stanley; selected in 1936. Fruit: very large; ripens latest of any in the trade; firm; tart flavor; high aroma. Bush: vigorous; productive; easy to propagate.

CHERRY

Orient (Minnesota No. 63).—Originated in Excelsior, Minn., by the University of Minnesota Fruit Breeding Farm. Introduced commercially in March, 1949. Self pollinated seedling of a Nanking cherry *(Prunus tomentosa)* originally obtained from O. M. Jenson of Albert Lea, Minn., in 1925; selected in 1940. Tree: vigorous; self-fertile. Fruit: good quality.

Starking Hardy Giant.—Originated in Cedarburg, Wis., by Mrs. O. R. Meyer. Introduced commercially in April, 1949. Patent No. 764; October 7, 1949; assigned to Stark Brothers Nurseries, Louisiana, Mo. Parentage unknown; discovered in 1925. Fruit: large size; attractive dark red color; high quality; flesh firm. Tree: extreme hardiness; very productive.

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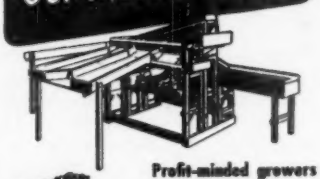

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CURRANT

Coronet (Ottawa 393).—Originated in Ottawa, Ont., Canada, by the Division of Horticulture, Central Experimental Farm. Introduced commercially in 1948. *Ribes ussuriense* Jancz. x Kerry; selected July 22, 1943. Fruit: black; most nearly resembles standard black currant varieties. Bush: immune from rust (*Cronartium ribicola* A. Fisch.).

Crusader (Ottawa 381).—Originated in Ottawa, Ont., Canada, by the Division of Horticulture, Central Experimental Farm. Introduced commercially in 1948. *Ribes ussuriense* Jancz. x Kerry; selected August 7, 1942. Fruit: black; most nearly esembles standard black currant varieties. Bush: most valuable characteristic is its immunity from rust (*Cronartium ribicola* A. Fisch.).

GRAPE

Emerald Riesling.—Originated in Davis, Calif., by the California Agricultural Experiment Station (H. P. Olmo). Introduced commercially in 1948. Muscadelle (of California) x White Riesling; cross made in 1936; first fruited in 1939. Fruit: clusters large, conical, well-filled; berry round, dark bluish-green; skin thick; pulp bright green; for production of white table wine of good acidity, of Chablis type. Vine: vigorous; heavy foliage cover; wood matures late in autumn; very productive.

Ruby Cabernet.—Originated in Davis, Calif., by the California Agricultural Experiment Station (H. P. Olmo). Introduced commercially in 1948. Carignane x Cabernet Sauvignon; cross made in 1936; first fruited in 1940. Fruit: clusters medium, loose; berry black, juicy, resistant to spoilage; produces table wine of high quality, similar to that of Cabernet Sauvignon but of more intense color and earlier maturation. Vine: vigorous; more productive than Cabernet Sauvignon.

Sanderson Special.—Originated in Glendale, Ariz., by Chester A. Sanderson. Introduced commercially in 1948. Patent No. 782; January 20, 1948; unassigned. Parentage unknown; discovered in 1942. Fruit: slip-skin type; skin maroon-colored; similar to Concord but milder; table grape. Vine: vigorous.

PEACH

Alamar.—Originated in Winters, Calif., by A. L. Martin. Introduced commercially in 1949. Patent pending. Parentage unknown; discovered in 1940. Fruit: flesh yellow; freestone; skin yellow with a very high blush; pit small; ships well; ripens 5 to 6 days after J. H. Hale. Tree: pollen sterile.

Anza.—Originated in Riverside, Calif., by the University of California Citrus Experiment Station (J. W. Lesley). Introduced commercially in 1948. Rosy x Golden State; selected in 1941. Fruit: flesh yellow; freestone; firm; quality good; midseason. Tree: chilling requirement less than J. H. Hale; may be adapted to regions of mild winters such as the higher mesas of southern California.

Babdon.—Originated in Ontario, Calif., by Chaffey College (George P. Weldon). Introduced commercially October 1, 1948. Babcock x Weldon; selected in 1945. Fruit: freestone; flesh white; red at pit; skin color similar to Babcock; fairly firm; quality fair; adheres well to tree.

Chadon.—Originated in Ontario, Calif., by Chaffey College (George P. Weldon). Introduced commercially October 1, 1948. Chaffey x Weldon; selected in 1945. Fruit: freestone; flesh white; large; skin greenish yellow with a blush; firm; quality

(*Continued on page 62*)

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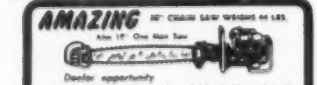

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NEW VARIETIES

(*Continued from page* 61)

good, similar to Chaffey; ripens mid August to September in southern California. Tree: resistant to delayed foliation.

Deberard.—Originated in Ontario, Calif., by the A. M. Deberard Orchard. Introduced commercially October 1, 1948. Bud mutation of Sims; discovered about 1940. Fruit: clingstone; flesh yellow. Tree: as early leafing as Babcock; otherwise it is strikingly similar in every respect to Sims; well adapted to southern California conditions.

Donwel.—Originated in Ontario, Calif., by Chaffey College (George P. Weldon). Introduced commercially October 1, 1948. Babcock x [Elberta x (Elberta x Peento)]; selected in 1945. Fruit: freestone; flesh yellow; skin yellow with a blush; quality excellent; ripens with Weldon. Tree: early foliation; bloom showy; recommended for home and semi-commercial plantings.

Early Babcock.—Originated in Ontario, Calif., by Chaffey College (George P. Weldon). Introduced commercially October 1, 1948. Babcock x Nectar; selected in 1945. Fruit: semi-freestone; flesh white; larger than Babcock which it most nearly resembles; skin color deep red; quality good; ripens 10 days before Babcock. Tree: subject to some delayed foliation.

Early White Giant.—Originated in Arkadelphia, Ark., by Frank Geheb. Introduced commercially in April, 1949. Patent No. 878; November 11, 1949; assigned to Stark Brothers Nurseries, Louisiana, Mo. Parentage unknown; discovered in 1937. Fruit: flesh white; semi-freestone; large; good quality; ripening very early, a week before Early Red Bird.

Flamingo.—Originated in Ontario, Calif., by Walter E. Lammerts. Introduced commercially in January, 1948. Patent No. 661; November 20, 1945; assigned to Armstrong Nurseries, Inc., Ontario, Calif. Open pollinated seedling of Rio Oso Gem; selected in 1940. Fruit: more uniform and more smoothly shaped than Rio Oso Gem which it most nearly resembles; ripens 5 to 10 days earlier than Rio Oso Gem and in same season as J. H. Hale. Tree: lower chilling requirement than Rio Oso Gem, being similar to that of Socala, making this new variety better suited to southern California and other mild winter areas; begins to leaf and flower earlier than Rio Oso Gem.

Gloribloom.—Originated in Ontario, Calif., by Chaffey College (George P. Weldon). Introduced commercially October 1, 1948. Babcock x [Elberta x (Elberta x Peento)]; selected in 1945. Fruit: freestone; flesh light yellow; skin light yellow, blushed; ripens with Weldon; quality fair. Tree: flowers showy. Recommended for home planting because of striking large pink flowers.

Golden Early Bird.—Originated in Downers Grove, Ill., by R. H. Christofferson. Introduced commercially in April, 1949. Open pollinated seedling of Crawford; discovered in 1937. Fruit: flesh yellow; semi-freestone; good quality; ripening very early, 6 days before Mikado.

Hale Harrison Brilliant.—Originated in Crozet, Albemarle County, Virginia, by Oscar F. Jones. Introduced commercially in November, 1949. Patent No. 814; December 14, 1948; assigned to Harrison Brothers Nurseries, Berlin, Md. Open pollinated seedling of Elberta. Parentage unknown; discovered in 1936. Fruit: flesh yellow; freestone; large, 3 inches in diameter; skin yellow with blush; flavor pleasing and better than Elberta; ripens during Elberta season; firm; ships well.

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Honeyberta.—Originated in Ontario, Calif., by Chaffey College (George P. Weldon). Introduced commercially October 1, 1948. Lukens Honey x Elberta; selected in 1945. Fruit: freestone; flesh yellow; skin yellow with an attractive blush; fairly firm; ripens in Elberta time; quality good. Tree: early foliation; production good.

Honey Dew Hale.—Originated in New Cumberland, Pa., by Charles O. Grisinger. Introduced commercially in April, 1949. Patent No. 888; November 1, 1949; assigned to Stark Brothers Nurseries, Louisiana, Mo. Bud mutation of J. H. Hale; discovered in 1936. Fruit: skin white with pink blush; flesh white marbled with yellow, with thin yellow segment from pit through skin, along suture; large size; good shipping qualities; most nearly resembles J. H. Hale.

Jun-berta.—Originated in Dover, Ark., by Henry Frank Smith. Introduced commercially in April, 1949. Bud mutation of Fair's Beauty; discovered in 1942. Fruit: attractive yellow; semi-cling; early, ripening 2 weeks before Fair's Beauty.

Maybelle (New Jersey 164.)—Originated in New Brunswick, N.J., by the New Jersey Agricultural Experiment Station (M. A. Blake). Introduced commercially in 1948. Raritan Rose x (J. H. Hale x Goldfinch) open pollinated. Fruit: medium size, semi-free; flesh white; attractive; ripens one week before Red Bird. Tree: hardier than Elberta. Flower: non-showy.

Merrill '49er.—Originated in Red Bluff, Calif., by Grant Merrill. Introduced commercially in January, 1950. Open pollinated seedling of J. H. Hale; selected in July, 1943. Fruit: flesh yellow; freestone; 1 week earlier than J. H. Hale, which it most nearly resembles. Tree: vigorous; self fertile.

Merrill Brilliant.—Originated in Red Bluff, Calif., by Grant Merrill. Introduced commercially in January, 1950. July Elberta x Florence; selected in June, 1945. Fruit: flesh white; clingstone; very brilliant color; tough skin; very early; most nearly resembles Alexander.

Merrill Dandy.—Originated in Red Bluff, Calif., by Grant Merrill. Introduced commercially in January, 1950. Open pollinated seedling of Candoka; selected in June, 1943. Fruit: flesh yellow; freestone; 3 weeks earlier than Candoka, which it most nearly resembles. Tree: vigorous; heavy bearer; self fertile.

Merrill Gold Rush.—Originated in Red Bluff, Calif., by Grant Merrill. Introduced commercially in January, 1950. Open pollinated seedling of J. H. Hale; selected in July, 1942. Fruit: flesh yellow; freestone; 3 weeks earlier than J. H. Hale, which it most nearly resembles. Tree: very vigorous; self fertile.

Merrill Home Canner.—Originated in Red Bluff, Calif., by Grant Merrill. Introduced commercially in January, 1950. Open pollinated seedling of J. H. Hale of F_2 generation, selected in June, 1944. Fruit: flesh yellow; clingstone; 4 weeks later than J. H. Hale which it most nearly resembles. Tree: vigorous

Merrill Late Canner.—Originated in Red Bluff, Calif., by Grant Merrill. Introduced commercially in January, 1950. Open pollinated seedling of J. H. Hale of F_2 generation, selected in September, 1947. Fruit: flesh yellow; clingstone; 8 weeks later than J. H. Hale, which it most nearly resembles.

Merrill Late Gold.—Originated in Red Bluff, Calif., by Grant Merrill. Introduced commercially in January, 1950. Open pollinated seedling of Kirkman Gem; selected in September, 1946. Fruit: flesh yellow; freestone; no soft stripe on suture; most nearly resembles Kirkman Gem.

(*Continued on page 64*)

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Turley **GRASSLAND SPECIAL SEEDER**

Especially designed to distribute granular nitrate and pellet fertilizers evenly over entire area, in minimum amounts required, quickly and accurately.

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Are you a slave to the drudgery of your small farm? Free yourself with GRAVELY Power Equipment. POWER does the work, gives you bigger, better crops, more beautiful grounds about your home, with less work! . . . The GRAVELY Plows (ready-to-plant seedbed in one operation); Mows hay, weeds, brush, lawns; Cultivates; Hauls; Saws; Sprays. Power to spare with big 5-HP Engine. Two speeds forward & REVERSE.

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FREE!

Mail coupon for name of dealer and this big two-color Free Booklet — "POWER VS. DRUDGERY" — that tells you how to put POWER to work on YOUR small farm — how to enjoy your country living without long hours, hard work!

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Where Known, Have Been the Choice of Commercial Growers For Many Years

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Grant Bags are made from first quality No. 10 Duck. The Bag is held open by a flexible iron hoop, especially shaped to allow for free movement of the picker, and can be carried in front or at the side as desired. Top is lined with soft leather for utmost in comfort and long wear.

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W. R. AMES CO.

150 Hooper Street 3905 E. Broadway
San Francisco 7, California Tampa 5, Florida

NEW VARIETIES

(*Continued from page 63*)

Starking Delicious.—Originated in Dover, Ark., by Henry Frank Smith. Introduced commercially in April, 1949. Patent No. 803; July 27, 1948; assigned to Stark Brothers Nurseries, Louisiana, Mo. Bud mutation of July Elberta; discovered in 1944. Fruit: yellow; freestone when full ripe; high quality; early, ripens 18 days before July Elberta and about 6 days before Red Haven. Most nearly resembles July Elberta.

Yelo.—Originated in Ontario, Calif., by Chaffey College (George P. Weldon). Introduced commercially October 1, 1948. (Lukens Honey x Elberta) x Weldon; selected in 1945. Fruit: freestone; flesh light yellow; skin yellow with a blush; ripens in mid-August, about the same time as Elberta; quality high.

PEAR

Golden Spice (Minnesota No. 4).—Originated in Excelsior, Minn., by the University of Minnesota Fruit Breeding Farm. Introduced commercially in March, 1949. Parentage unknown; selected about 1924 from seed planted in 1914. Fruit: small; clear yellow with blush; flesh light yellow, juicy; flavor pleasant, tart, spicy; ripening in mid-season. Most nearly resembles Seckel in size, but not as sweet. Tree: very hardy; productive; a good parent for further breeding.

ORCHARDKRAFT AIR-POWERED PRUNER

with a hammer-forged rust-proof cutting head. Excellent for tight places and close cutting. Light weight air cylinder requires only 2.7 C.F.M.—will stand up to 150 lbs. pressure. Cuts 1½ inch limbs. "Priced Right." Send for folder today.

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Paint liquid on bark of trees from ground up to 4 feet. Lasts all winter and will not harm trees or rodents. Liquid TRE-TEX comes ready to apply; powder must be mixed with denatured ethyl alcohol. One quart protects 35-50 young trees.

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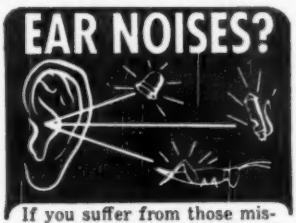

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PLUM

Redgold (Minnesota No. 101).—Originated in Excelsior, Minn., by the University of Minnesota Fruit Breeding Farm. Introduced commercially March, 1949. Burbank x Jewell; selected in 1919 from seed planted in 1914. Fruit: large; dark red with heavy bloom; skin thick; flesh orange, juicy, tender, sweet; clingstone; ripening in mid-season. Tree: hardy; productive. Most nearly resembles Toka.

South Dakota (South Dakota No. 27).—Originated in Brookings, S.D., by the South Dakota Agricultural Experiment Station (N. E. Hanson). Introduced commercially in March, 1949, by the Minnesota Fruit Breeding Farm, Excelsior, Minn., with the approval of the South Dakota Experiment Station. Parentage unknown; selected before 1907. Fruit: medium size; freestone; good quality. Tree: excellent pollinizer; very hardy; productive; excellent parent for breeding hardy freestone plums.

RASPBERRY

Bonanza.—Originated in Ontario, Calif., by Armstrong Nurseries, Inc. (Herbert C. Swim). Introduced commercially in 1949. Sunrise x Washington; selected in 1945. Fruit: ripens 2 to 3 weeks earlier than Sunrise, tending to continue fruit production throughout the growing season with heavier crop in the fall. Bush: vigorous; low chilling requirement; heavy fruit production in southern California.

Honeyking.—Originated in Parkside, Saskatchewan, by A. J. Porter. Introduced commercially in 1948. Viking x a native raspberry; selected in 1945. Fruit: red; very good quality for canning; fruit too small where standard sorts can be grown. Bush: cold resistant; yields well.

Magnaberry.—Originated in Ontario, Calif., by Armstrong Nurseries, Inc. (Herbert C. Swim). Introduced commercially in 1949. F_8 (Nessberry x Sodus raspberry); selected in 1945. Fruit: combines flavor of the raspberry and blackberry, excellent for jam or jelly with a distinct flavor and fine appearance. Bush: large; vigorous; produces heavy crops.

STRAWBERRY

Adirondack.—Originated in Glens Falls, N.Y., by George A. Webster. Introduced commercially April 1, 1948. Fairfax x Howard 17; selected in 1940. Fruit: large, conic; flesh firm, red throughout, aromatic; calyx very showy. Plant: vigorous; deep rooted; heavy bearer over a long season.

Campbell (Riverview; California 467-1).—Originated in Davis, Calif., by the California Agricultural Experiment Station (R. E. Baker and Victor Voth). Introduced commercially in 1949. Parentage: Cal. 177.21 [USDA 543 x Cal. 68.24 (USDA 634 x New York 4626)] x Cal. 103.22 [Cal. A.08 (USDA 253 x F_2 USDA 253) x Nich Ohmer]. Fruit: its early summer and early fall peaks of production precede those of other University of California varieties (e.g., Sierra, Tahoe), thus filling in the slack picking periods.

Cupertino (California 829.9).—Originated in Davis, Calif., by the California Agricultural Experiment Station (R. E. Baker and Victor Voth). Introduced commercially in 1949. Parentage: Cal. 611.4 (168.3 x 186.1) x Cal. 468.4 (177.21 x 135.18); derived from Nich Ohmer, Banner, Fendalcino, USDA 253 and 634 and New York 4626. Fruit: exceptionally glossy; aromatic; flavor good; production peaks follow other University varieties (e.g., Shasta, Tahoe) and thus fills in slack picking periods.

(*Continued on page 66*)

SCARFF'S FINE FRUITS for HOME and MARKET

Heaviest yielding & most profitable varieties

ROBINSON STRAWBERRY—best for the home garden. Largest sweetest berries. **SPARKLE STRAWBERRY**—the choicest for freezing. Firm dark red clear thru.

NEW BRISTOL and MORRISON BLACK RASPBERRIES—tops in quality and size from early to late season.
LATHAM RED RASPBERRIES—our State Certified plants are the cleanest stock available from any source.
MARION (purple)—largest of all Raspberries.
BLUEBERRIES—fruits large as grapes. Bearing age plants.
RED LAKE CURRANTS—for making sparkling red jellies.
NEW VALENTINE ALL-RED RHUBARB—for pies, sauce, freezing. By far the sweetest and best of red rhubarbs.
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Plant reliable *true-to-name* Oregon FRUIT and NUT TREES *Nursery Stock*

FROM A FAMOUS OLD NURSERY—"FRUIT TREE SPECIALISTS" for 33 Years

Over 300 acres of quality stock to select from . . . grown from certified buds. Quick bearing. Healthy State Inspected stock. Guaranteed.

FRUITS apples, peaches, pears, prunes, plums, cherries, apricots, nectarines, and others

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VINING BERRIES, CANE BERRIES, STRAWBERRIES, BLUE BERRIES, SHRUBS, ORNAMENTALS, FLOWERING SHADE TREES

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PLANT VANCE DELICIOUS

Which we consider first among Double Red Delicious Sports for the following reasons:
Early Coloring. Can be harvested 10 days ahead of the next earliest Red Delicious.
Good Color. Smooth, bright, uniform red.
Size. One of the largest of the Delicious family.
These advantages of Vance mean better prices at early markets, more number apples because of uniform red color and greater volume in the pack.
Write for further information on VANCE and our 48-Page Planting Guide in full color, offering many other varieties of Fruits, as well as Ornamentals.

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WAYNESBORO, *Virginia's Largest Growers of Fruit Trees* **VIRGINIA**

Strawberry Plants Certified

Grown on new land, excellent roots, large crowns, true-to-name, moss packed. Guaranteed to arrive in good growing condition. Plants you can depend on. Missionary, Blakemore, Klonmore, Klondyke. Postage paid, 100, $1.25; 250, $2.25; 500, $4.25. Express collect, 1,000, $6.00; 5,000, $27.50; 10,000, $50.00. Tenn. Shipper, Tenn. Beauty, Robinson, Premier. Postage paid, 100, $1.50; 250, $3.00; 500, $5.00. Express collect, 1,000, $8.00; 5,000, $37.50; 10,000, $70.00. Plants ready. Order now. We will ship date you specify.

Romines Plant Farm, Dayton, Tenn.

Burpee GIANT Fluffy Ruffles PETUNIAS

25¢ PKT. 10¢

Gloriously ruffled, fringed, up to 5 in. across! **Scarlet, copper, rose-pink, mauve, white,** mixed. 25c-Packet seeds for 10c. *Send Dime Today!*

Seed Catalog Address: **W. ATLEE BURPEE CO. 694 Burpee Building**
FREE *at nearest city:* **Philadelphia 32, Pa.** *or* **Clinton, Iowa** *or* **Riverside, California**

MIRACLE FRUIT COCKTAIL TREE $1.89

Pink PEACHES, PLUMS, CHERRIES, APRICOTS and CHERRY-PLUMS All from the Same Tree

Now . . for the first time, Naughton introduces the sensation of the orchard . . the amazing, spectacular Miracle Fruit Cocktail Tree! This miracle tree actually produces golden delicious peaches, luscious plums, juicy red cherries, golden apricots and delicious cherry-plums — yes, all on the same tree! Amaze Friends! Be the first in your neighborhood to own a Fruit Cocktail Tree. You'll thrill with excitement when this spectacular tree begins to produce.

A WHOLE ORCHARD ON ONE TREE!

It's a plant sensation that will revolutionize fruit tree growing for "city folk" who have limited planting space — and for "farm folk" who want a spectacular tree for their orchard. Produced by a special budding process, each tree bears Elberta and Jubilee peaches, Abundance plums, Red Bush cherries, Golden apricots and Plum-Cherries.

Fresh Fruit All Summer! You'll prize your Miracle Fruit Cocktail tree more every year! Imagine, this original tree—this miracle of the year—is yours for the astoundingly low price of only $1.89!

SEND NO MONEY — WE SHIP C.O.D. Pay postman only $1.89 plus small postal charges. Satisfaction Guaranteed or Money Back. Order Now—Supply Limited! Be sure you get your amazing Fruit Cocktail Tree!

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DWARF FRUIT TREES

More FULL-SIZED FRUIT PER ACRE at Less Cost

More luscious, full-sized fruit per acre—harvests commanding the highest market prices—Can be yours with Dwarf Fruit Tree orchards.

Apples, Peaches, Pears, Plums and other Dwarf trees bear up to 6 years sooner than standard-sized trees. And their smaller size permits spraying, pruning and other care at greatly reduced cost.

SEND TODAY for our catalog and get full information on these profitable, easier-to-care-for Dwarfs. Choose from choicest varieties worked onto proper understock. Apples grafted on true East Malling clonal rootstocks. Special Malling Nos. I to IX, for commercial growers whose particular needs can be adapted by following certain recommendations. Order direct from the grower, Henry Leuthardt.

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The What, When, Where and How to in the Planting and Care of Size-Controlled Dwarf Fruit Trees

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FRUIT TREES

We specialize in growing High Quality Nursery Stock for Fruit Growers. A complete line of Fruit and Nut Trees, Berry Plants, Roses, Evergreens and Flowering Shrubs. Write for colored Catalogue with Money Saving Prices.

EAST'S NURSERY
BOX 450 AMITY, ARKANSAS

Thin-Shell Black Walnuts

Rapid growers, beautiful shades. Bear second year. Nuts large, easily cracked. Catalog Free.

CORSICANA NURSERY Corsicana, Texas

CALENDAR OF COMING MEETINGS AND EXHIBITS

Jan. 11-12—South Carolina Horticultural Society annual meeting, Spartanburg.—Roy J. Ferree, Sec'y, Clemson.

Jan. 11-13—Indiana Horticultural Society annual meeting, Roberts Hotel, Muncie. — Ray Klackle, Sec'y, Hort. Dept., Purdue Univ., West Lafayette.

Jan. 13-14—Utah State Horticultural Society annual convention, Salt Lake City.—A. Stark, Sec'y, Salt Lake City.

Jan. 16-17—Central Illinois Horticultural Society annual meeting, Lincoln-Douglas Hotel, Quincy.—James D. Wood, Sec'y, Quincy.

Jan. 18-19—Maine State Pomological Society annual meeting, Lewiston.—Rockwood N. Berry, Sec'y, Livermore Falls.

Jan. 18-20—New York State Horticultural Society 95th annual meeting, Edgerton Park, Rochester.—D. M. Dalrymple, Sec'y, Lockport.

Jan. 23-25—Virginia State Horticultural Society 54th annual meeting, Hotel Roanoke, Roanoke.—John F. Watson, Sec'y, Staunton.

Jan. 25-27—New York State Horticultural Society eastern meeting, Kingston.—D. M. Dalrymple, Sec'y, Lockport.

Jan. 25-27—State Horticultural Association of Pennsylvania annual meeting, State Educational Bldg., Harrisburg.—J. U. Ruef, Sec'y, State College.

Jan. 23-28—New Jersey Farmers Week, Trenton. Fruit sessions New Jersey State Horticultural Society Jan. 25-26.—Fred W. Jackson, Dept. of Agriculture, Trenton 8.

Jan. 31-Feb. 1—New Hampshire Horticultural Society annual meeting and trade show.—D. R. Batchelder, Sec'y, Wilton.

Feb. 8-10—American Pomological Society annual convention, in conjunction with Ohio State Horticultural Society annual meeting, Deshler-Wallick Hotel, Columbus, Ohio.—W. D. Armstrong, Sec'y, APS, Princeton, Ky.; C. W. Ellenwood, Sec'y, OSHS, Wooster, Ohio.

Feb. 9-11—West Virginia State Horticultural Society 57th annual convention, Martinsburg.—Carroll R. Miller, Sec'y, Martinsburg.

Feb. 9-10—Idaho State Horticultural Society 55th annual meeting, Hotel Boise, Boise.—Anton S. Horn, Sec'y, Boise.

Feb. 14-15—Horticultural Society of Northern Illinois, LeClaire Hotel, Moline. — Keith Engdahl, Sec'y, East Moline.

Feb. 20-22—National Peach Council annual meeting, Beltsville and Wardman Park hotels, Washington, D.C.—M. J. Dorsey, Sec'y, 1502 S. Lincoln Ave., Urbana, Ill.

Apr. 4-5—Vermont State Horticultural Society annual meeting, Middlebury.—C. Lyman Calahan, Sec'y, Burlington.

FRUIT VARIETIES

(*Continued from page 65*)

Northwest (Washington 220)—Originated at Puyallup, Wash., by the Western Washington Experiment Station (C. D. Schwartze). Introduced for trial September, 1949. Brightmore x a complex hybrid derived from Narcissa, Ettersburg, and Wilson; selected in 1943. Fruit: surface bright crimson with a high gloss; long-conic; flesh firm, light red throughout; size large to very large in early pickings, medium size at end of the season; ripening season late, beginning almost a week after the first picking of Marshall; well adapted to commercial freezing and canning. Plant: high resistance to yellow virus; very productive; single-crop variety, showng no tendency of everbearing habit; not resistant to root rots. Recommended for areas that can no longer grow Marshall because of yellows disease.

Redcrop (New Jersey 377).—Originated in New Brunswick, N.J., by the New Jersey Agricultural Experiment Station (J. H. Clark). Introduced under restriction in 1948; introduced commercially in 1949. Aberdeen x Fairfax. Fruit: large; high quality; medium firm; red throughout; attractive calyx; very good for frozen pack. Plant: vigorous; productive; resistant to red stele in New Jersey.

Silva.—Originated in Sebastopol, Calif., by William E. Silva. Introduced commercially in 1950. Patent No. 890; November 1, 1949; unassigned. Rockhill x (Gem x Wayzata); selected in 1945. Fruit: large, heart-shaped; everbearer. Plant: produces no runners.

Kelly's FRUIT TREES

• Our fruit trees... APPLES, PEARS, CHERRIES, PLUMS, PEACHES . . . are sturdy, northern grown stock. They are guaranteed to grow and bear fruit early. We are one of the largest growers of Fruit Trees and supply Quality True-To-Name Trees at fair prices. Satisfaction Guaranteed.

Established 1880

KELLY BROS. NURSERIES, INC.
155 Maple St., Dansville, N. Y.

DWARF FRUIT TREES

We offer the best heavy-producing varieties also standard fruit trees, strawberries, raspberries, blueberries, grapes, shrubs, shade and nut trees, ornamentals. You can rely on Miller's stock. Backed by 75 years experience, customer satisfaction. New catalog describing and illustrates everything fully. Write TODAY for Free Copy.

J. E. MILLER NURSERIES
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Truly hardy 50¢/1.00 ROSES

Bloom six weeks after planting. Up to 100 blooms first year, more next. Sub Zero Roses take less care. *Write for our New 1950 catalog.*

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FARIBAULT, MINN. "FIRST ORCHARD CREST"

GROW WHITTEN'S GIANT BLUEBERRIES FOR BIG PROFITS

All heavy producers. Plump sweet berries ½ to ¾ in. size. Reach 6 to 8 ft. height. 1-year plants or 2-year bushes. Send for Catalog of trees, fruits, shrubs, flowers. Choice Varieties. Lowest Prices. Catalog free. WRITE TODAY.

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Baldwin's 1950 Catalog of Fruits, Shrubs, Roses, Flowers. Guaranteed Stock, reduced prices. 60 years' experience. New Fairland and Superfection Strawberries. Best varieties Raspberries, Boysenberries, Blueberries, Grapes, Asparagus, Tree Fruits, Nut Trees. Special offers—Cash discounts. Illustrated catalog free. Write today.

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TREE EVERBEARING BLACKBERRY

Grows in any backyard soil or climate. Produces up to six gallons per plant. Earning $1500.00 per acre for commercial growers. Two year old plants 3 for $2.75, 6 for $5.00. Special price and literature on commercial plantings. Other Nursery Stock.

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800 Varieties Grapes

Specializing in French Hybrids

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One, two, and three years. Certified. Early, midseason and late varieties, bargain prices.

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FRUIT TREES

APPLE • PLUM • PEACH • CHERRY

Orchard Prices—*Write for Catalog*

CALL'S NURSERIES Est. 1877 Call Road, Perry, Ohio

EXCLUSIVE "Truly hardy"

DWARF PIE CHERRY

The Minnesota Fruit Breeding Farm has created a new variety of Sour Cherry that grows as a dwarf tree. The fruit—large, red and juicy—surpasses Montmorency in flavor and color for pies and sauce. Undoubtedly will become one of the leading commercial varieties. Order some today.

3-4 ft. trees $2.50 each postpaid.

For the best in new Fruits, write for our new 1950 color catalog.

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FAIRBAULT, MINNESOTA

For A Sound Investment...
Plant
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FRUIT TREES and GRAPE VINES
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Reliable for 85 years. Fruit trees are foothill-grown with extra care at every step. Graded by caliper and height. Strong fibrous root systems for greater vigor. Write for quotations.

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Healthy—Profitable
FRUIT TREES
Budwood Inspected by State of Mich.
GUARANTEED

A complete line of the most popular and most profitable fruit tree varieties. Every tree Michigan grown from State inspected budwood—Guaranteed true-to-name. Send for our big FREE illustrated catalog. Everything you need for profitable planting—at prices you can afford. Write today,

EMLONG'S NURSERY
Box FG Stevensville, Mich.

CITRUS

(*Continued from page 23*)

Exchange since 1893 has been guiding the flow of a considerable percentage of the California and Arizona orange, lemon, and grapefruit crops to consuming centers. Membership in the exchange totals, today, about 14,000 growers representing approximately 75 per cent of the citrus crops of the two States. Handling and selling charges are assessed on a packed box basis. Cost of advertising to the grower is seven cents a packed box for oranges.

Rules and regulations for the handling and advertising of Florida citrus are administered by a group of 11 representative growers and shippers who form the Florida Citrus Commission, Lakeland. A special act of the Florida Legislature in 1935 established the commission.

In the 1948-49 season, receipts of the commission amounted to over $2 million. These funds are obtained through an excise tax on each box of citrus fruits shipped in fresh form or processed. The tax is 2 cents per box on oranges, 3 cents on grapefruit, 4 cents on limes, and 5 cents on tangerines. Expenditures for consumer advertising in 1948-49 totaled about $1¼ million. Expenditures for sales promotion and publicity, research, etc., totaled another half million dollars.

Early in 1949 the Florida Citrus Mutual was formed. Its objective is to control the flow of citrus fruit to market. About 75 per cent of the industry is supporting this new marketing agency.

The Florida Citrus Exchange, Tampa, was organized voluntarily by growers in 1910 for purpose of advertising citrus fruits. In 1948 about $50,000 was spent for advertising its master "Seald-Sweet" brand.

The Indian River Sub-Exchange of the Florida Citrus Exchange has a budget in 1949-50 of about $60,000, to advertise its "Florigold" and "Flo" brands. The Lake Region Packing Association of Tavares, an Exchange affiliate, spends about $15,000 a year on its "Hammock" brand.

Owing to the extensive freeze damage to citrus trees in Texas in January, 1949, the advertising activities of the Texsun Citrus Exchange, Weslaco, have been greatly curtailed.

In October, 1949, the Texas Citrus Commission was created through the passage of a bill in the State Legislature. The law provides for a 27-man commission which is authorized to levy and collect a tax on packing and processing Texas citrus fruits not to exceed 3 cents per standard box equivalent, to be used for research, advertising, and commission expenses.

A PROFITABLE ORNAMENTAL
BLUEBERRIES

Raise CULTIVATED BLUEBERRIES. Exquisite white blossoms; grow six feet tall. Two to four bushes will supply average family. No Money-maker for planters. Sell fresh, like to be a quart. Fully described in our catalog of over 100 real bargains in plants, trees and shrubs. Write now.

An Ideal Orchard on ONE Tree
Quintuplet APPLE
5 Kinds on One Tree
Greatest Wonder of the Fruit World

At last—an ideal apple tree for the small home owner. Think of it—FIVE DIFFERENT VARIETIES—here they are—Anoka, Yellow Delicious, Jonathon, Red June an' Red Rome Beauty—all popular varieties—all on one beautiful shady tree. Apples all season long. Beautiful boxed description in full bloom. Be the first in your community to enjoy this profitable and most satisfying Novelty Tree. Fully described in our catalog of over 100 bargains in plants, trees and shrubs. Write now.

Grow New Giant
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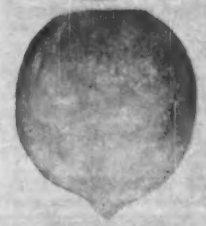

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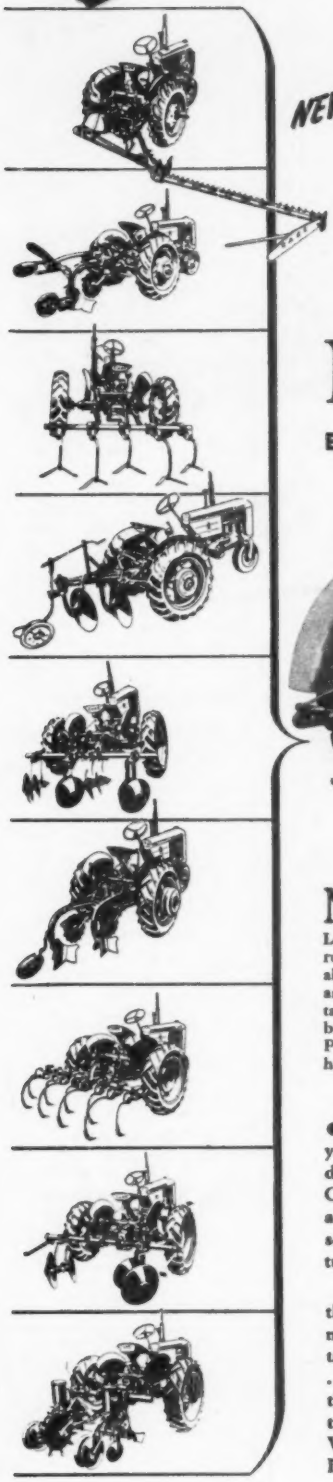

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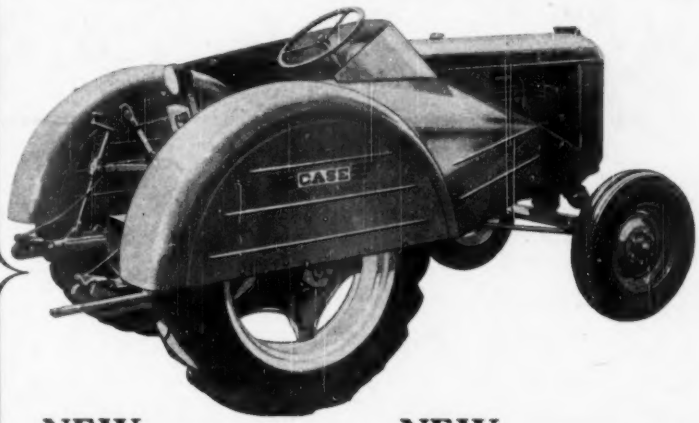

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NEW LATCH-ON IMPLEMENTS

Regular and two-way moldboard plows that hold their depth regardless of hard pulls and uneven ground. Disk plows, bedders and cultivators. Sturdy mounting bar supports irrigation furrow openers and all kinds of sweeps, points, shovels. Listers, planters, mowers. Some are shown at left. Also front-mounted cultivators and other implements.

● Be fair with yourself. Demand proof before you invest your good money in any tractor. Ask your Case dealer to demonstrate . . . right in your own operations . . . that the Case "VAO" gets more work done and does it better than any other tractor in the low-cost class. Take the wheel yourself and compare it for pull, for working speed, for quick turning and easy handling.

Send now for "VA" Series catalog. Get the full story of the heavy-duty Case-built engine that gives full power at moderate speed, runs long years with low upkeep and sustained fuel economy. Get details on the amazing Eagle Hitch . . . the wide choice of Latch-On implements . . . the handy, time-saving features of the new low-pressure hydraulic control. It's not push-button farming, but the next thing to it! Write for your copy; send postal card today. J. I. Case Co., Dept. A-13, Racine, Wis.

Look to this sign for first-class dealer service and the finest of farm machines.

(above) STARK GOLDEN DELICIOUS and STARKING red DELICIOUS Apples like these—and Stark peaches, apricots, pears, plums, cherries, grapes, berries—command top prices on the nation's markets.

ARE YOU GETTING YOUR SHARE OF THESE Bigger Apple Profits?

Growers of STARK GOLDEN DELICIOUS, red STARKING DELICIOUS Apples, and OTHER Stark Fruits report MORE bushels-per-tree, MORE dollars-per-bushel—often as much as 50% more! How much would you like to increase YOUR fruit profits?

1949 U. S. Dept. of Agriculture Report for Chicago Market (May 11) lists Starking Delicious, Extra Fancy, at $7.00 per bushel box—MORE than any other variety listed!

U.S. DEPT. OF AGRIC. -- CHICAGO MARKET -- MAY 11
APPLES: STEADY..STARKING DELICIOUS EX. FANCY
80...150s $7.00 PER BU. BXS.

WOULD you like to net at least $100 or $200 MORE per acre than you are now getting from your ordinary apple trees? Would you like to have trees that bear years YOUNGER, bear HEAVIER, and bear big crisp beauties that command TOP PRICES on today's market? Would you like to discover how the BIG money is being made today not only in apples, but also in peaches, plums, pears, cherries, apricots, grapes, berries?

Then you owe it to yourself to join the fruit growers who are enjoying year-after-year of steady prosperity with their STARK Fruit Trees . . . such as STARK GOLDEN DELICIOUS and red STARKING DELICIOUS Apple trees!

STARK GOLDEN DELICIOUS is 50% larger than many other yellow apples, and has already been picked from 2-year trees in 38 states. STARKING DELICIOUS is a 100%-red apple that reddens all over *several weeks earlier* than Delicious, while still hard-ripe. Both apples keep all winter, and are of such unusual *size* and *flavor* that they command top market prices year after year.

What Growers Say about These Great Apples

"I have a Stark Golden Delicious tree 2 years old that has 40 or 50 apples on it!" — William Robinson, Washington.

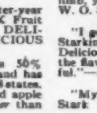
"In spite of the coldest, most prolonged cold winter on record in *our section*—in spite of late spring frosts, causing other varieties in our orchard to fail—in spite of the hottest summer with the most severe and longest drought in the memory of our oldest inhabitant, *Stark Golden Delicious came through and produced a bumper crop of big, smooth, beautiful apples which we sold for $6400 right on our orchards.*"—Rising Springs Orchards, Ill.

"My 500 Stark Golden Delicious 10 years old will harvest 12,000 bushels. I market them at 50% to 100% more than others."—E. F. Burgeim, Okla.

"We had four successive frosts while Stark Golden Delicious were blooming. Some clusters were so frosen that the spur died back to the limb, yet they produced a crop!"—W. O. Smith, Kentucky.

"I got 50% higher prices for my Starking Delicious apples than for Delicious. All my customers think the flavor and color simply wonderful."—Philip Weisbrud, Iowa.

"My Starking Red Delicious and Stark Golden Delicious trees are loaded. Some Starking trees average 13 to 14 bushels and they *are beauties*. I picked Starking that graded 64 to the bushel and even now (Sept.) they are bright red all over. That's the advantage Starking has over old Delicious—colors early and gets the high prices for the first Red Delicious on the market. The all-over-red Starking color makes them bring 33% to 40% more than Delicious year after year."—Frank Penstone, Ill.



Luther Burbank

America's "Wizard of Horticulture" asked that Stark Bro's carry on his great work and introduce his new fruit creations.

Why STARK Apples, Pears, Plums, Cherries, Peaches, Berries, Are More Profitable

Everything the Stark family has learned in its 134 years of producing MORE SUCCESSFUL nursery stock goes into each tree we sell:

1. Each Stark fruit tree is a Record-Bearing strain propagated direct-in-line from a champion "parent" tree that has established an UNBEATEN RECORD for heavier bearing, or younger bearing, or larger-sized fruit, or better colored fruit, or a combination of these superior traits.

2. Our famous trademarked "OLD OAK PROCESS" method of grafting onto a special whole root instead of a piece-root gives your new Stark trees a big "head start"—makes them *stronger, younger-bearing, longer-living.*

3. As the largest nursery in the world, we can spend a fortune in research for you. We have huge Test Orchards where 1000 new fruit varieties are studied—where a new variety must come through with "flying colors" before it is offered to YOU.

4. We are exclusive propagators and distributors of LUTHER BURBANK'S new and patented fruit creations.

Mail Coupon for Brand-New Big FREE Catalog

If you want to find out more about the EXTRA-PROFIT POSSIBILITIES—not only of Stark's apples, but also of our improved peaches, pears, plums, cherries, berries, and grapes—mail coupon below for our brand-new-FREE catalog. This big book (over 1 foot long) shows glorious *natural color photos* of all our money-making fruit varieties—and our beautiful shade trees, shrubs, and roses too. ALSO FREE, if you mail coupon at once: our valuable Home Landscaping Book, showing how to add outdoor beauty and increased sales value to your home. Mail coupon NOW!

MAIL COUPON FOR BRAND-NEW

FREE

STARK CATALOG

Shows our 302 varieties of fruit, shade trees, shrubs, roses—in glorious full color!

STARK BRO'S NURSERIES & ORCHARDS CO. APPLE 50
Box 11, Louisiana, Missouri

☐ Please send me, FREE, your big, beautiful new STARK 1950 COLORPHOTO CATALOG filled with gorgeous natural color photographs of your 302 varieties of fruit, berries, shade trees, shrubs, roses—including new STARK HARDY DWARF Fruit Trees.

☐ Check here to get FREE Home Orchard Planning Guide (Covering 10 or More Trees).

☐ Check here for FREE HOME LANDSCAPE PLANNING BOOKLET and Plans.

Name.....

Street or R.F.D.....

P.O.....State.....

☐ **CHECK HERE IF YOU WOULD LIKE TO GET A WEEKLY CASH COMMISSION CHECK** for introducing Stark Trees. Pleasant, easy outdoor work for men or women; spare time or full time. No experience needed to start.

STARK BRO'S NURSERIES & ORCHARDS CO.
BOX 11, TOWN OF Louisiana, MISSOURI
Largest in World . . . Oldest in America
Nurseries Coast to Coast

"I Sold $1562 Worth of Trees in One Month, Spare Time"—AL. HELLBRUNG

Al. Hellbrung

AL. HELLBRUNG makes new friends and extra money the whole year round—in pleasant, easy, healthful outdoor work—introducing Stark Fruit Trees (and Ornamental Trees, Shrubs, and Roses) to folks in his own locality.

Wouldn't YOU like to add to your weekly income the same way? Easy work—evenings, Saturdays, any time. No experience necessary to start—Charley Drake of Georgia earned $81.56 in his first week.

Introducing Stark's exclusive varieties (not available anywhere else) is like being on a "second payroll." You get your prompt Stark cash commission check this week for last week's business. Folks welcome you—they've seen full-page Stark ads in national magazines and the gorgeous color Stark Fruit Tree Book. They've heard of famous Stark Bro's, World's Largest Nursery, founded 134 years ago. You don't invest a penny—work on our capital. We give you Display Outfit FREE with suggestions on whom to see, what to say.

FREE BOOK shows how *even beginners* can get nice pay checks one week after first orders. JUST CHECK BOX at bottom of coupon.

IF YOU WANT TO MAKE SPARE-TIME MONEY, CHECK COUPON HERE